The Creation of the Universe and the Monopole String of Paul Dirac for the Magnetic Monopoles of t'Hooft-Polyakov

Tony Bermanseder

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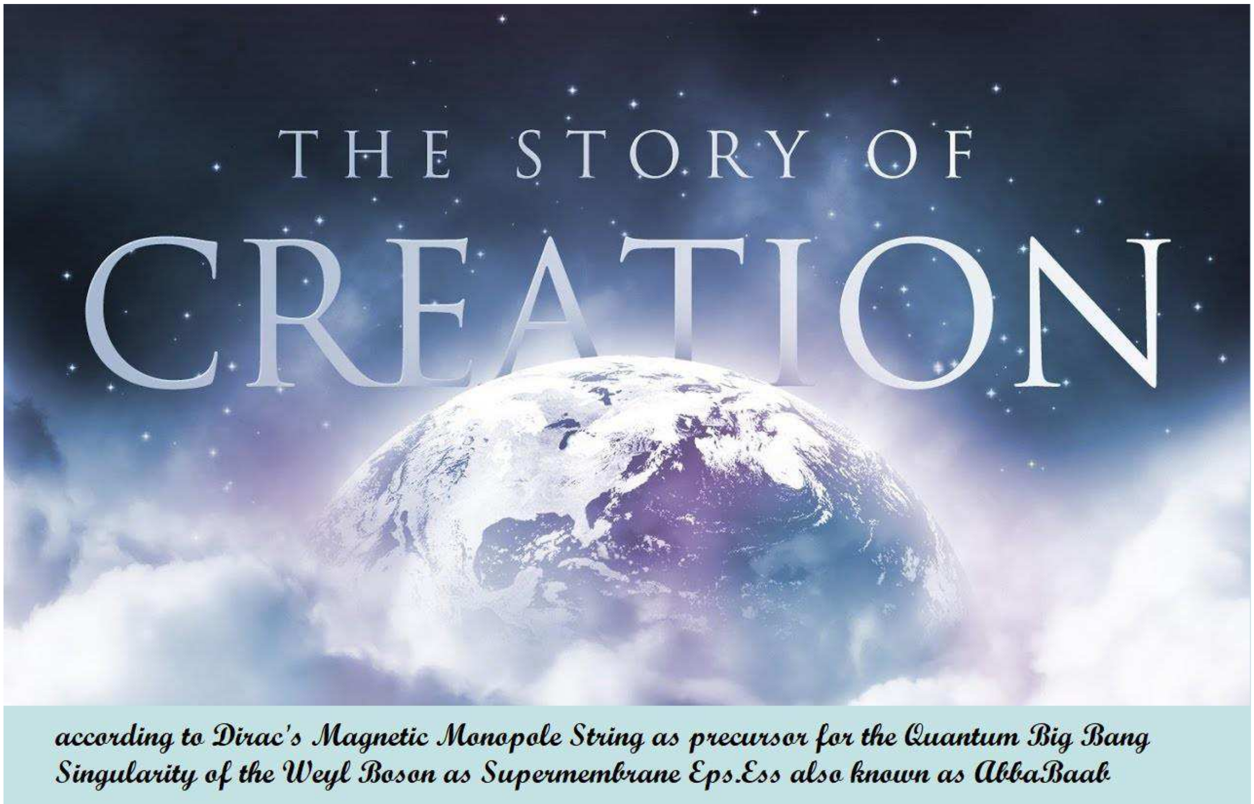
The Dirac quantization condition and its relationship to the electromagnetic finestructure constant alpha is derived from the initial boundary conditions of the Quantum Big Bang Singularity (QBBS). The QBBS is shown to form a 2/11-dimensional mirror membrane as a 1-dimensional Dirac string relating timespace of a string-membrane epoch preceding the QBBS to the spacetime following the creation event. The Dirac monopole then transforms as a point particle into a space extended elementary particle known as the classical electron and is electro charge coupled as an electropole to the magneto charge of a magnetopole. The electron as a point particle of QFT and QED so becomes the monopolar form of the Dirac monopole as the Dirac electron, but coupled to the elementary quantum geometric templates of the scalar Higgs boson with a dark matter particle defined as a RMP or Restmass Photon. The space occupying classical electron is shown to oscillate on the fermi scale of the nuclear interactions of colour charge asymptotic gluon-quark confinement, with the ground state for the electron defining the wormhole singularity of the QBBS in spacetime as the fifth transformation of superstring classes (heterotic class 64) from the timespace era. The Dirac string so manifests as a membrane-mirror for a 4-dimensional spacetime embedded within a 5-dimensional spacetime and descriptive for a 3-dimensional surface embedded as volumar within a higher dimensional cosmology, described in the properties of a Möbian-Klein Bottle geometric connectivity for a one-sided manifold becoming two-sided in the original form of the Dirac string as a one-dimensional mathematical singularity mirroring itself in the monopolar string self-duality of a multidimensional holographic cosmology.



Video link: https://youtu.be/zOVag2pcApo

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The Creation of the Universe and the Monopole String of Paul Dirac for the Magnetic Monopoles of t'Hooft-Polyakov

Abstract:
The Dirac quantization condition and its relationship to the electromagnetic finestructure constant alpha is derived from the initial boundary conditions of the Quantum Big Bang Singularity (QBBS). The QBBS is shown to form a 2/11-dimensional mirror membrane as a 1-dimensional Dirac string relating timespace of a string-membrane epoch preceding the QBBS to the spacetime following the creation event. The Dirac monopole then transforms as a point particle into a space extended elementary particle known as the classical electron and is electro charge coupled as an electropole to the magneto charge of a magnetopole. The electron as a point particle of QFT and QED so becomes the monopolar form of the Dirac monopole as the Dirac electron, but coupled to the elementary quantum geometric templates of the scalar Higgs boson with a dark matter particle defined as a RMP or Restmass Photon. The space occupying classical electron is shown to oscillate on the fermi scale of the nuclear interactions of colour

charge asymptotic gluon-quark confinement, with the ground state for the electron defining the wormhole singularity of the QBBS in spacetime as the fifth transformation of superstring classes (heterotic class 64) from the timespace era. The Dirac string so manifests as a membrane-mirror for a 4-dimensional spacetime embedded within a 5-dimensional spacetime and descriptive for a 3-dimensional surface embedded as volumar within a higher dimensional cosmology, described in the properties of a Möbian-Klein Bottle geometric connectivity for a one-sided manifold becoming two-sided in the original form of the Dirac string as a one-dimensional mathematical singularity mirroring itself in the monopolar string self-duality of a multidimensional holographic cosmology .

The natural stability of the proton and the absence of an original supersymmetry between matter and antimatter is shown to be the result of the non-existence of antimatter in the primordial universe and the coupling of the Higgs boson to the RMP of spin -1 and energy 14.03 TeV*. Primordial neutron decay becomes the transformation of a RMP boson in the form of an ylemic dineutron into two lefthanded neutrons quantum spin coupled to a graviphoton as the scalar Higgs bosonic blueprint of the wave-quarkian quantum geometry. Particular initial boundary conditions for the QBBS, defined as the Dirac magnetic monopole indicate the energy regime for the Higgs Boson as being bounded in a subatomic displacement scale from 0.000014-0.0028 fermi. This displacement scale forms a natural boundary for the mesonic scale for the strong nuclear interaction and resolves the discrepancy in the mean lifetime for beta minus decay in showing that the excess of neutrons at the Higgs energy with RMP-dark matter excess is 126.95/125.78=1.0093 and becomes balanced by a deficit of neutrons at the Higgs energy with RMP -dark matter deficit in 122.49/123.57=0.9913 and time differences of 10.28 and 9.92 seconds* for a mean neutron lifetime of 880.14 s* respectively.

The thermodynamic evolution of the universe is shown to relate a general evolution of neutron stars with specific nuclear densities with respect to the cosmic radiation background to the Hawking properties of black holes as a background energy matrix originating from the distribution of a baryonic mass seedling and its coupling to the QBBS parameters.
The Hawking-Gamow Temperature Unification for classical and quantum gravitation is so derived as the temperature ratio:
$T_{Hawking}/T_{ylem} = 1 = hcR_e^3/2\pi G_o m_c^2 R_{ylem}^2 R_{Hawking} = R_e^3/\alpha_{nucleon}.R_{ylem}^2 R_{Hawking}$
with $\alpha_{nucleon} = \alpha_{planck}\alpha_e^{18}$.

Hawking's micro black holes are shown to play a decisive role in the universal cosmology, as they modulate the quantum gravitational universe of the creation event with the classical gravitation of the spacetime geometry. In particular the micro black holes form the energy centers within encompassing vortices of potential energy modelled on the Jeans length applied to the general temperature evolution of the universe and inclusive of dark matter haloes around galaxies deriving from the original intersection of the higher dimensional inflaton superluminal light path with the lower dimensional light path of the instanton.

The difficulties in measuring Newton's gravitational constant are found to be directly related to the measured variation in the electromagnetic finestructure constant alpha α_e as the polar orientation of the Dirac string of the QBBS and as a distribution of t' Hooft-Polyakov monopoles in the Schwarzschild metric at the GUT unification energy scale from $2.7\text{x}10^{16}$ GeV* to $8.1\text{x}10^{17}$ GeV*.

Introduction

Paul A.M. Dirac said in his 1931 paper addressing his work on the quantization of electric charge in connection with the magnetic charge of a magnetic monopole:
"The theory leads to a connection, namely, [$eg_o = hc/4\pi$], between the quantum of magnetic pole and the electronic charge. It is rather disappointing to find this reciprocity between electricity and magnetism, instead of a purely electronic quantum condition such as [$hc/2\pi e^2$]."

In his 1948 paper Dirac emphasized his belief in magnetic monopoles:

"The quantization of electricity is one of the most fundamental and striking features of atomic physics, and there seems to be no explanation for it apart from the theory of poles. This provides some grounds for believing in the existence of these poles."

Then in 1978, Dirac expressed his disappointment as to the apparent unreality of magnetic monopoles and the physical importance of the electromagnetic finestructure constant alpha:

"…[the theory]...did not lead to any value for this number value [$\alpha^{-1} \approx 137$]*, and, for that reason, my argument seemed to be a failure and I was disappointed with it."*
"The problem of explaining this number $hc/2\pi e^2$ is still completely unsolved. Nearly 50 years have passed since then. I think it is perhaps the most fundamental unsolved problem of physics at the present time, and I doubt very much whether any really big progress will be made in understanding the fundamentals of physics until it is solved."

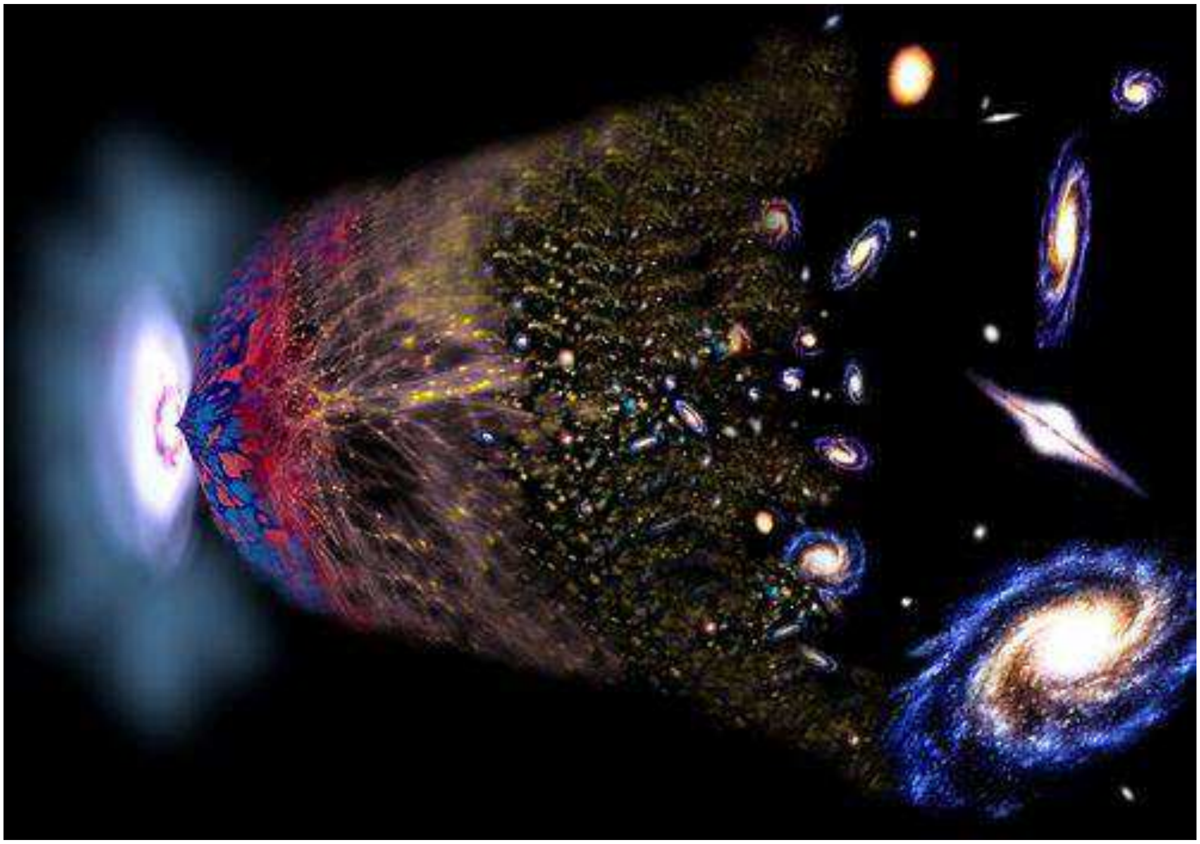
Ref:

Dirac, P.A.M. (September 1931). "Quantized Singularities in the Electromagnetic Field". Proceedings. **133** (821): 60–72.Bibcode:1931RSPSA.133...60D. doi:10.1098/rspa.1931.0130.

1. Dirac PAM. Quantized singularities in the electromagnetic field. Proc R Soc Lond A. 1931; 133: 60-72.
2. Dirac PAM. The theory of magnetic poles. Phys Rev. 1948; 74: 817-830.
3. Dirac PAM. The monopole concept. Int J Theor Phys. 1978; 17: 235–247.
4. https://arxiv.org/pdf/1810.13403.pdf

The Creation in a Quantum Big Bang in Spacetime from Timespace

The origin and nature of the universe has been a question of inquiry since the beginnings of sentient life forms experiencing themselves in a variety of forms and degrees of being self-aware.
Many cosmological models have and are being constructed from the beginnings of speech and sound and geometric symbolism to words and written record keeping in parchments, scrolls, paper, manuscripts, and the digitalization of libraries.



The Big Bang model for the creation of the universe

In the journey through the history of planet earth in time, the models created and composed to explain this history and the encompassing history of the universe itself, have attained a nexus point of comprehension and understanding to enable the planetary civilization on earth to collectivize and universally share its information basis with the overall universe. A universal civilization potential can then be realised, by substituting an older historical timeframe of Universal Political Correctness by the 'Uniphyscon' or 'Universal Physicalized Consciousness' and as a synonym for a new historical timeframe and timespace as the generator of spacetime.

Timespace differs from spacetime in that time can exist without space as a simple count of mathematical point singularities or frequency permutation states in the case of particular modular dualities relating the mathematically abstract inversion properties of numbers to the physicalizations of the frequency states as inverse time to the period of oscillatory physical systems, such as a world defined in energy and its mathematical representations modelling the physical reality.

The universe was born from a mathematical singularity, known as a quantum fluctuation creating space and time in a minimized spacetime parameter configuration known as the Quantum Big Bang Singularity or QBBS. This quantum fluctuation is defined as the energy potential of a Zero-Point Planckian Quantum Harmonic Oscillator and as a minimum displacement configuration in a QBBS timespace and can also be termed as the 'bounce of the Planck length' as this minimum length any displacement defined in space can have. It was this 'bounce' of timespace which formed the required original boundary conditions for the universe to be born in spacetime in the coupling of this 'instant in timespace' called a instanton and coupled to an 'instant in space' as the inflaton. The QBBS then defined the concept of multidimensional spacetime in a dual action of a lower dimensional universe becoming embedded in a higher dimensional universe as effect of the inflaton utilizing the boundary condition of the instanton to manifest a parallel cosmology in the lower- and higher dimensional spacetimes.

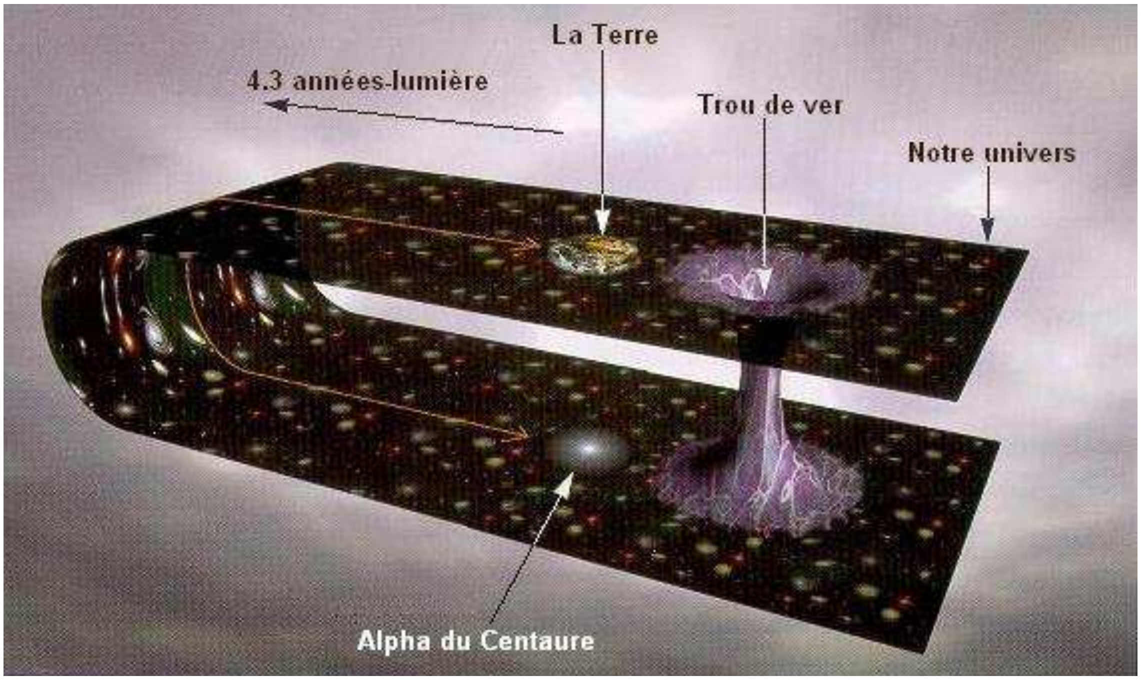
This minimum spacetime configuration of the instanton-inflaton parameter space coupling is defined as a parameter space of the QBBS and containing other mathematical abstract point spaces such as symbolic representations known as fundamental constants and elementary mathematical relationships between numbers and equations of different degrees of interwovenness and complexity.
All entities in the QBBS parameter space shared a common origin in the abstraction of an encompassing data collective, which can be called the plenum or world of Information-Energy.
This world existing before the QBBS, so defines a notime in nowhere, where the concept of order precedes the concept of time in its independence of duration or time intervals; but where event B cannot occur before event A has occurred and independent from how far apart events A and B would be in an existing spacetime.
As time and space became manifest with the universe in the QBBS, the abstract entities emerging from it did not exist in the form of the QBBS parameter spacetime, but in the QBBS timespace. This QBBS parameter timespace can be described as a prior realm of abstract mathematical definition and algorithmic identities and as a mirror universe awaiting its own metaphysical creation and manifestation through the emergence of particular data collectors and information gatherers within a then existing spacetime. The universal data collectors would evolvingly become self-aware in universal physicalized consciousness to utilize the abstract entities from the plenum of the information world to connect the spacetimed universe with the time spaced mirror universe. As the mirror of the timespace was also a mirror of the spacetime, it could and would image all particulars of the physical universe in global and local parameters into Khaibit, the shadow of the physical universe as the mirror universe of the QBBS parameter spacetime.

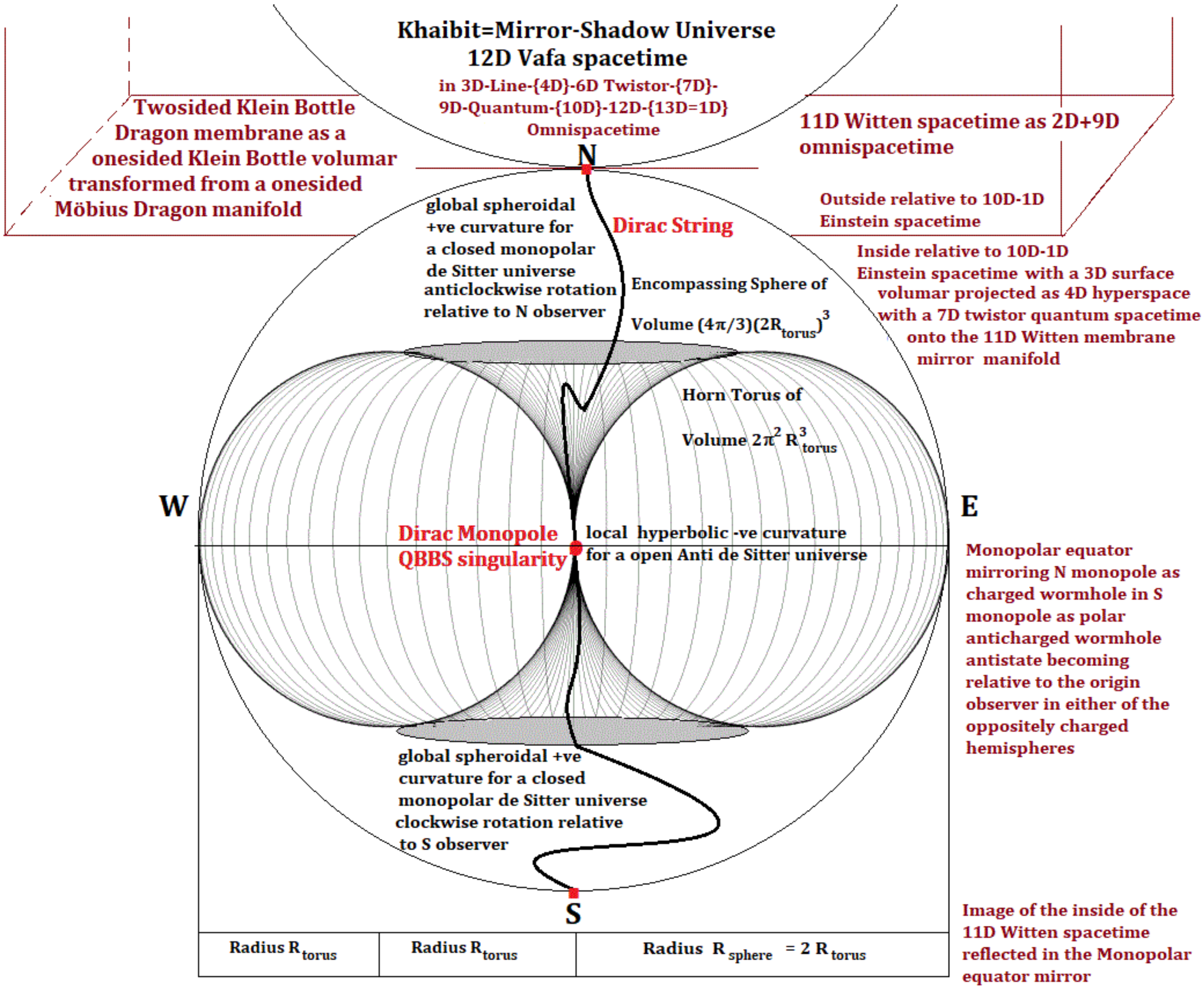
This scenario required a medium of super-universal communication to connect the physical universe with Khaibit as its metaphysical shadow and mirror universe. The medium for the super-universal communication took the form of quantum entangled universal physicalized consciousness and where this 'QE of the Uniphyscon' enabled the two worlds to blend and merge from the platform of an old timespace configuration into a form of a new spacetime configuration. The difference between the old form and the new form is that the old form began in time to create space and that the new form will be able to start from the space to create time. The implication is that the old spacetime could not manipulate the interdependency of space and time, such as the initial boundary conditions defined in the QBBS, including the invariance of the 'speed of light c' as a limit for velocity and the acceleration of any material object could achieve. This dependency found in the natural laws was a consequence of the spacetime matrix beginning with time as the first and generating dimension and not with space as the generator dimension. In the old world the time dimension generated three expanding space dimensions with an additional six twistor space dimensions, strongly associated with the first time dimension for a 10-dimensional string spacetime. The twistor dimensions are different from the expanding time dimensions in that the twistor dimensions remain independent from space, except for their minimum spacetime configuration of forming little curls or circles around the time dimension.

In the new world, the 1st time dimension will exchange with the 10th string dimension to change the old starting 1st time dimension into the 1st space dimension and opening up the 4th, previously curled up string dimension as a new space dimension. This will transform the old universe of 4-dimensional flat Minkowski spacetime into a new universe, defined physically as a 5-dimensional flat Kaluza-Klein hyper-spacetime. In the old world, the 4th expanding time dimension formed the boundary for an expanding universe, but in the new world, the 10^{th} dimension will be the endpoint time dimension as a new boundary for the universe and connecting a new mirror of the 11^{th} dimension to the mirror universe Khaibit as the inside of the boundary of the 10^{th} dimension. The outside of the Witten membrane spacetime mirror will be the inside of Khaibit as a 12^{th} dimensional Vafa spacetime forming a spacetime perfect image of the inside of the 10-dimensional spacetime of the universe. The timespace of the QBBS generator will so become equivalent to the spacetime of the QBBS evolutionary path in the form of information exchange across the boundary of the Witten membrane mirror of the 11^{th} dimension. The end result will be a holographic multiverse in 12 dimensions and where the 11-dimensional membrane mirror will become the universal data collector as a root-reduced two-dimensional and two-sided Klein bottle manifold, yet one-sided as a Möbian connector having effectively doubled the old spacetime universe in 10 dimensions of the 4-dimensional hyperspace with a 6-dimensional twistor space and the 11^{th} dimension as the new shared time dimension between Klein as Möbius and Khaibit. The two sidedness of Klein so is defined in the new time dimension as a 10-dimensional string space of 4 hyperspace dimensions with 6 quantumspace dimensions to bridge the difference to the 11-dimensional membrane space as the 10^{th} spacetime dimension connecting as a brane space to the 11^{th} spacetime dimension to generate the 12^{th} spacetime dimension as a superbrane volumar spacetime , so creating the shadow universe through the mathematical topology and definition of the Klein Bottle manifold of being one-sided but self-intersecting itself in the 11-dimensional Witten surface.

This Witten Mother-Magic-Membrane-Mirror as the 11^{th} dimension and connector of the two universes will encompass the hyper-spacetime of Kaluza-Klein as four space dimensions with one time dimension, embedding five dimensions within 11 dimensions and displacing the six twistor dimensions as three rotation dimensions in rotation space and with three vibration- or frequency dimensions in quantum space. The boundary of the hyper-spacetime will be a 3-dimensional surface or volumar, embedded within a 4-dimensional volumar, defined in the geometry and topology of hyperspace as $V_4=\frac{1}{2}\pi^2R^4$ and $dV_4/dR=(2\pi R)(\pi R^2)=2\pi^2R^3$ and so the volume of a Horn torus in 3 dimensions, also known as a Riemann sphere with radius R_{torus}.
In geometric terms, this indicates that a 3-dimensional sphere as the size and volume of the universe with radius R_3 is equal in volume to a Horn torus with radius
$R_{torus}=\sqrt[3]{\{2/3\pi\}}R_3$ and so the radius of the Horn torus is reduced by a factor of 1.6765… from the radius R_3 of the sphere in three dimensions. Doubling the radius of the Horn torus as the radius for the encompassing sphere as $R_3=2R_{torus}$ so shows that 8 spheres of radius R_{torus} fit precisely into an encompassing sphere with radius $2R_{torus}$. But considering the volume of the universe as a 3-dimensional boundary with $V_3=dV_4/dR=2\pi^2R_4^3$ to embed a 3-dimensional volume $V_2=(4\pi/3)R_2^3$ with its boundary as surface area $dV_2/dR=4\pi R_2^2$ then defines a boundary condition of $R_4 \geq \sqrt[3]{\{2/3\pi\}}R_2$, showing that in an expanding and time evolving universe; the 3-dimensional torus volumar will attain its critical nexus of changing from its 3-dimensional volumar status into a 3-dimensional surface membrane status at a time given by the boundary condition.
This time marker has been calculated as occurring 994.78 million years ago and so the topological geometry of the universe changed from a single positive de Sitter curvature into a combination of its positive spheroidal de Sitter curvature with a negative hyperbolic Anti de Sitter curvature in 4-dimensional spacetime, cancelling the positive curvature to manifest a perfectly flat universe with zero curvature.
This can be visualized at the center of the Horn torus, where the tangential curvature of the torus radii meet in the horizontal plane to create the concave topology of a wormhole or an Einstein-Rosen bridge with the surface of the torus radii curving away from the center and for the emergence of geometric circular cross sections as the northern top and the southern bottom of the Horn torus.

But at the north pole and south poles of the vertical plane connecting the two hemispheres of the prior encompassing 3-dimensional spherical volumar, the curvature is convex, cancelling the concave curvature intrinsic for the cosmological evolution of the universe to all of the time prior to the critical curvature time marker and as measured and observed by any observer within the expanding universe.





This prior realm or world is described as the outside boundary of the manifested singularity of the QBBS, with the inside boundary defining physical universe as the fifth of five abstract mathematical singularities and as a one-dimensional entity in transforming its nature as a mathematical point into that of a mathematical line known as a Dirac string.
A Dirac string so allows the mathematical abstraction of the point space to transform into a point line requiring space to extend into as itself and as a Y direction in some coordinate system.
The minimum parameter spacetime so enables a 2nd dimension to emerge from the Dirac string, as the 1st dimension of a minimized line segment of wavelength λ_{weyl} curls itself around the mathematical point space it used to occupy as a segment of the Dirac string. This process changes the 1st dimension of the Dirac string from a time dimension into a 1st space dimension as the now space limited summation of mathematical line segments and redefines the newly created space dimension of the XY-plane as a quasi-time dimension.
The entire Dirac string so transforms itself as a mathematical point without extent into a mathematical line of any number of such point spaces to create the Dirac string extending in two polar directions from the mathematical singularity of the QBBS. As there is no limit of how many mathematical point can exist

in the Information-Energy prior spacetime plenum, the Dirac string is initially infinite as a consequence of no spacetime existing at the point of creation known as the first instant of time or the Instanton.
As the individual point spaces integrate as a sum of such point spaces however, each individual point preserved its individual universal identity in circularizing its point space into a membrane- or string space in the XY-plane. The Weyl wavelength λ_{weyl} so became redefined from its circular form as the perimeter of a point circle as the displacement of the circumference from the center of the point circle as its wormhole radius. With the creation of a 2nd area or surface dimension from the point circle count from the mathematical point count, two orthogonal directions emerged from the potential infinite Dirac string, which became upper and lower bounded in changing the expansion from the lower bounded origin to the universal north as self-relative positive upper bound in a direction from the origin towards the self-relative positive east with a simultaneous creation of the self-relative negative west direction in the transformation of the expansion towards the self-relative south as the mirror of the positive and negative polarities of the upper bound in the origin.

This creation of the 2nd dimension so formed a limit for the mathematical point spaces extending in space and in time into two opposite directions. The potential infinite linespace became halted in the QBBS defining the two endpoints as two Weylian wormholes defined in the Guth-de Broglie Inflaton and mirrored at the origin as two polar opposite but identical minimum timespace configurations. The northern positively charged wormhole so observes the self-relative anticlockwise rotation as effect of the righthanded torque of the Dirac string projecting orthogonally from the newly created XY-plane into the XZ-plane of a so created 3rd dimension and with the torque angular displacement defining a new positively charged part of the northern hemisphere as pointing into the positive Z-axis direction or 'out' from the XY-plane. The southern negatively charged wormhole in the southern hemisphere corollary projects the torque in the negatively charged XY-plane in a clockwise rotation 'into' the XY-plane of the 3rd dimension to complete the 8 sectors of the geometrically defined encompassing 3-dimensional sphere with radius twice the torus radius. The four torus radii so define the radius of the sphere in meeting at the QBBS singularity physically defined as the Dirac magnetic monopole. The 2nd quasi-time dimension so becomes a real space dimension and the newly created 3rd dimension takes its place as a quasi-time dimension acting on the XY-plane as a flatland of membrane spacetime.

The Dirac Magnetic Monopole and the Instanton-Inflaton Quantum Entanglement of Wormholes

The Dirac monopole is defined only at the singularity as the QBBS, but is connected via the Dirac string in an arbitrary gauge space, defining potential energy in any place of the universe defined in a three-dimensional parameter space, subject to the initial boundary conditions derived from the timespace of the higher dimensional plenum of nowhere in notime.
It so is the Dirac string, which allows the point potentials to transform into string potentials in the rotation space around the Dirac string transforming individual point potentials into the Weylian wormhole potentials and integrating and summing subsequently about the three orthogonal space directions of the X-Y-Z plane intersection. The magnetic monopole singularity of the QBBS so is defined as the Weylian wormhole of creation and the initial boundary condition for this minimum spacetime configuration becomes a conformal mapping of the Planckian wormhole from the timespace of the information plenum of algorithmic and mathematical definitions.

The northern- and southern parts of the Dirac string were defined as infinite, before becoming bounded in the creation of the 2nd dimension followed by the emergence of the 3rd dimension and the Weyl string in 2 space dimensions with a quasi-spacetime dimension, able to potentialize the timespace parameter definitions to create a 3-dimensional space with a 4th spacetime dimension. The QBBS parameter spacetime definitions of the boundary conditions for the inflaton now fully integrate a 4th real time dimension and manifest the Weylian wormhole volumar as a Black Hole defined by the instanton.
The nature of the inflaton so is to free the 3rd quasi-spacetime dimension from its original definition of being potentially infinite in extent, but existing in a space less gauge free parameter realm of pure real time without one-dimensional space defining the number count of the timespace in nowhere in notime; or as existing in a free parameter world of infinite one-dimensional space without time.

Dirac's Quantization Condition for magnetic charge g as proportional to electric charge e

The monopole of mass m_m and magnetic charge q_m circulates at a radius r and velocity v in the electric field between two capacitor plates in the XY-plane within a constant electric field **E**=E**z** and where **z** is the unit vector in the Z direction connecting the two poles.

The Lorentz force $q_mvB=q_mvE/c$ balanced by the centripetal force m_mv^2/r then gives, in the classical high energy limit for v~c

$E=m_mvc/rq_m$ ……………………………..[Eq.1a]

The energy of the monopole is quantized in the Landau quantization $E_n=hf(n+½)= (h\omega/2\pi)(n+½)$ and as a result of using the Hermitian function $\Psi_n(x)$ as general form for a probability frequency distribution and used to derive the form for a classical 1-dimensional harmonic oscillator in the form of a quantum harmonic oscillator in quantum mechanics.

The Normal distribution formula has a form $\Psi(x) = \{1/\sqrt{2\pi}\}e^{-½x^2}$ which is found in the Hermitian function:

$$\psi_n(x) = \frac{1}{\sqrt{2^n\, n!}} \cdot \left(\frac{m\omega}{\pi\hbar}\right)^{1/4} \cdot e^{-\frac{m\omega x^2}{2\hbar}} \cdot H_n\left(\sqrt{\frac{m\omega}{\hbar}}x\right), \qquad n = 0,1,2,\ldots.$$

The functions H_n are the physicists' Hermite polynomials,

$$H_n(z) = (-1)^n\, e^{z^2} \frac{d^n}{dz^n}\left(e^{-z^2}\right).$$

The corresponding energy levels are

$$E_n = \hbar\omega\left(n+\frac{1}{2}\right) = (2n+1)\frac{\hbar}{2}\omega\,.$$

The classical form for the harmonic oscillator are given by the Hamiltonian:
$\mathcal{H} = \wp^2/2m + ½\, kx^2 = \wp^2/2m + ½m\omega^2 x^2$

The kinetic energy $p^2/2m=m^2v^2/2m=½mv^2$ and potential energy $½kx^2=½m\omega^2x^2$ from Hooke's law and the equation of motion:
$F=-kx=md^2x/dt^2$ and a solution $x(t)=A\cos(\omega t+\text{constant})$ with $dx/dt=-\omega A\sin(\omega t+\text{constant})$ and with $d^2x/dt^2=-\omega^2A\cos(\omega t+\text{constant})$, defining $\omega=\sqrt{(k/m)}=2\pi f=2\pi/T$

The energy levels of the classical Hamiltonian then correspond to the eigenvalues of the Hermitian operator $\mathcal{H}(Y)=(ih/2\pi)d\Psi$ for the momentum operator $\wp = -(ih/2\pi)\partial/\partial x$
The time independent Schrödinger equation $\mathcal{H}(Y)=(ih/2\pi)d\Psi=E(\Psi)$ then allows solution for the wave function $x|(\Psi)=\Psi(x)$ for the eigenvalues of the Hermite function $H_n(x)$
as Landau poles and with energy levels E_n quantized in integer n and defining a minimum harmonic quantum oscillator for n=0 as the Zero-Point Energy of the Planck oscillator
$E_o=½(h/2\pi)\omega_o=½(h/2\pi)(2\pi f_o)=½hf_o$

The mass of the monopole can be equated with the mass of a particle accelerated in a cyclotron for the high energy limit.
For a cyclotron frequency $\omega=2\pi f_c$ from $mv^2/r=qBv$ with $v=rqB/m$ and $\omega=v/r=qB/m=qE/mc$ and $E=cB$ for the coupling of the electric field with the magnetic field for

$\omega = q_mE/m_mc$……………………………..[Eq.2a]

The quantized kinetic energy for the orbit of the magnetic monopole so is $½m_mv^2=n.hf$ for $\omega=2\pi f=q_mE/m_mc$ for
$½m_mv^2=n.hf=n.h\omega/2\pi=n.hq_mE/2\pi m_mc$ and describing the quantization of angular momentum $\mathbf{J_Z}$ for the magnetic monopole about the Dirac string.

$J_Z = m_mvr = 2n.(h/2\pi)$ …………………..[Eq.3a]

$m_mv = 2n.(h/2\pi)/r = Erq_m/c$ by [Eq. 2a] for a quantization condition for the electric field
$E=2n.(hc/2\pi)/r^2q_m$………………………..[Eq.4a]

And without the zero-point dark energy minimum Planck quantum harmonic oscillator, in the Landau poles $E_n = hf(n+½)$, which can be said to exist as a precursor of the manifestation of the Quantum Big Bang in a string-membrane epoch defined from an oscillation of the Planck displacement as the original quantum fluctuation
$L_{planck} = e/c^2\sqrt{\alpha} = \sqrt{\{hG_o/2\pi c^3\}} = \{G_o/c^2\}m_{planck}$

This quantum displacement 'bounce' of the minimum spacetime configuration initiated the interdependency of fundamental constants, utilized in the laws of nature in defining the ratio of electrocharge over the squared speed of light c^2 in unitizing two unitary measurement systems; one mass centered in the form of Planck units suppressing universal charge, both electric and magnetic and the other suppressing universal mass in the corollary of charge centered Stoney units. The coupling of those two unitary systems then unify the finestructures of energy-charge based electromagnetism with those of an energy-mass based gravitational interaction.

The angular momentum J_Z relates to the electric field E in [Eq.3a] for the mass of the monopole in $Erq_m/vc=m_m=2n.(h/2\pi)/vr$ and the positive charge at the north pole and the negative charge on the south pole, considered to be infinite in extent but intersected by the cylindrical circular flux areas at the two poles for a total charge density of $E.dA=E.2\pi r^2= 2Q/\varepsilon_o =2\sigma_e\pi r^2/\varepsilon_o$ for $E=2\sigma_e/2\varepsilon_o = \sigma_e/\varepsilon_o = 2Q/2\varepsilon_o\pi r^2 = Q/\varepsilon_o\pi r^2$ for $\Sigma Q=\sigma_e\pi r^2$ for each capacitor plate

$E=2n.(hc/2\pi)/r^2q_m = \sigma_e/\varepsilon_o = Q/\pi r^2\varepsilon_o$ … and charge quantization $Q = 2\pi\varepsilon_o\{n.hc/2\pi\}/q_m$ …for $Q=\Sigma e=N.e$……………………………………………………………………[Eq.5a]

Dirac's quantization condition follows as $q_mQ=2\pi\varepsilon_o\{n.hc/2\pi\}=\{(4\pi\varepsilon_o hc)/2\pi e^2\}\{½n.e^2\}=\{n.e^2/2\alpha\}$ for $q_m=n.e^2/2\alpha N.e=n.e/2\alpha N$

Magnetic monopole $q_m =n.e/2N\alpha=\{n/N\}\{e/2\alpha\}$ ……..[Eq.6a]

Dirac's quantization condition for the nature of a magnetic monopole being coupled in its magnetic charge to the electric harge of an electron, so relates Dirac's constant of [Eq.1] in defining q_m=(Dirac's Constant)(an expression as a multiple of $e/2\alpha$) and so presenting [Eq.7a] in a form of:

$e^* = n.e/4\pi\alpha = \{n/2\pi\}\{e/2\alpha\} = ð_{dirac} \{e/2\alpha\}$ ………….[Eq.7a]

and where $ð_{dirac}$ becomes Dirac's Constant
$ð_{dirac} = 8\pi cR_e e/G_o h = 4R_e[ec]/L_{planck}^2c^3 = 4.54214\times10^{19}$ [C/m^3s^{-2}]*……………..[EQ.1]

The derivation of Dirac's constant indicates the symmetry in Maxwell's equations in a form of rendering the point charge magnetic monopole of Paul Dirac as equivalent to the 't Hooft-Polyakov magnetic monopole of a Grand Unification energy spectrum, bounded in a finestructure unification condition relating the gravitational interaction to the electromagnetic interaction and so allowing the point charge electron of QFT and QED to reclaim its classical definition in the parameters of the electromagnetic fine structure alpha $\alpha=2\pi k_e e^2/hc=e^2/2\varepsilon_o hc=\mu_o ce^2/2h=60\pi e^2/h$ via the electron's total energy given by

$m_ec^2=k_ee^2/R_e$ for the classical electron radius as a function of its mass m_e for
$R_e=k_ee^2/m_ec^2=2\pi k_e he^2/2\pi hc^2m_e=h\alpha/2\pi cm_e=\alpha\{h/2\pi cm_e\}$
$=\alpha R_{compton}=\alpha^2\{h^2/4\pi^2k_em_ee^2\}=\alpha^2R_{Bohr1} =\alpha^2\{ZR_n/n^2\}=\alpha^2\{Z/R_{Rydberg}n^2\}$ and where $R_{Rydberg}$
defines the quantized electron energy levels in the wavelength
$1/\lambda_e=R_{Rydberg}\{1/n^2 – 1/(n+1)^2\}$ in the Bohr atom for quantized angular momentum $nh/2\pi=m_evR$ for
$v=nh/2\pi m_eR$ or total energy
$KE+PE=\{-½PE+PE\}=½m_ev^2-Zk_ee^2/R=-Zk_ee^2/2R$ for $E_n=hf_n=hc/\lambda_n$

The lower bounded unification monopole describing the Dirac magnetic monopole has a Maxwellian displacement current along the Dirac string in units of [Am], but manifesting as a mass equivalence $m_{monopole}=[ec]_{mod} =4.818\times10^{-11}$ kg* for an energy $[ec]_{mod}c^2=ec^3=2.7\times10^{16}$ GeV*

Richard Feynman's derivation for Dirac's Quantization Condition for magnetic charge g as proportional to electric charge e

Richard Feynman's method to derive Dirac's quantization condition shows how to embed the Dirac string into two path integrals in a quantum-mechanical derivation, using two wave functions $\Psi(x_1,t_1)$; $\Psi(x_2,t_2)$, connecting two points A and B in two path integral summations $e^{[2\pi i/h]S(x1)}$, $e^{[2\pi i/h]S(x2)}$ for probability amplitudes $P=|K|^2$ and $K=\mathbf{\Psi_1.\Psi_2}=\int D(x)e^{[2\pi i/h]S(x)}$ and for classical action $S(x)=\int \mathcal{L}(x,dx/dt)dt$ and Lagrangian $\mathcal{L}$ and where the summation of all paths is symbolised by D(x)
Then $K=K_1+K_2=\int D(x)e^{[2\pi i/h]S(x1)}+\int D(x)\,e^{[2\pi i/h]S(x2)}$ for the action of a free particle unaffected by the Dirac string field enclosed by the two path integrals summed over all possible paths, $S(0)=\int KE\,dt=\int(½mdx/dt)\,dt$ $P=|K_1+K_2|^2$
Action S(1) however interferes with action S(2) in the external vector potential $\mathbf{A_L}$ in units of charge density $(q/\varepsilon_o=\mu_o g)$ in the action $S=S(0)+(q/c)\int \mathbf{A_L\,.dL}$ The closed path integral so becomes $\oint_C \mathbf{A_L\,.dl}=\int \mathbf{A_2\,.dl}-\int \mathbf{A_1.dL}$ for path A to B to A changing direction from clockwise to anticlockwise or vice versa.

$$K=\int_1 D(x)e^{[2\pi i/h](S[0]+[q/c]\int_1 \mathbf{A.dL})}+\int_2 D(x)e^{[2\pi i/h](S[0]+[q/c]\int_2 \mathbf{A.dL})}=\{K_1+e^{[2\pi iq/hc]\oint_C \mathbf{AL\,.dl}}K_2\}\,e^{[2\pi iq/hc]\int_1 \mathbf{A.dL})}$$

The interference term of the closed path $e^{[2\pi iq/hc]\oint_C \mathbf{AL\,.dl}}$ for $\oint_C \mathbf{A_L\,.dl}=\oiint \mathbf{\nabla x A_L\,dA}=\oiint \mathbf{B_{monopole}\,.dA}+\oiint \mathbf{B_{string}\,.dA}$

Then $e^{[2\pi iq/hc]\oint_C \mathbf{AL\,.dl}}=e^{[2\pi iq/hc]\oiint \mathbf{Bmonopole.dA}}\,e^{[2\pi iq/hc]\oiint \mathbf{Bstring.dA}}$ for $e^{[2\pi iq/hc]\oiint \mathbf{Bstring.dA}}=1$, as the Dirac string of dimension 1 is not observable, the vector potential being undefined everywhere except at the singularity
The magnetic flux is however $\oiint \mathbf{B_{string}\,.dA}=\mu_o q_m=g/\varepsilon_o$ for $e^{2\pi i(qg/hc\varepsilon o)}=1$ for $4\pi qge^2/4\pi\varepsilon_o hce^2=2.qg\alpha/e^2=2\alpha g/e$ and $g=n.e/2\alpha$ for q=e and $e^{2\pi i.n}=1$

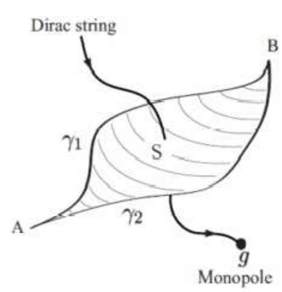


Figure 8. A Dirac string is encircled between two generic paths γ_1 and γ_2 starting at A, ending at B, and forming the boundary of the surface S.

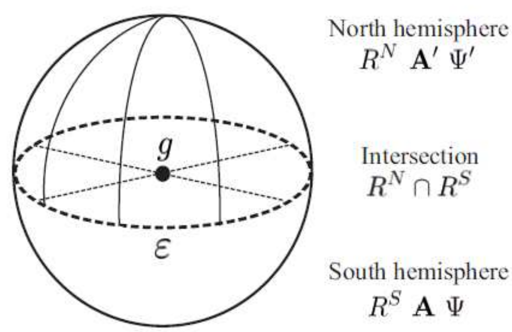


Figure 9. The Wu-Yang configuration describing a magnetic monopole without the Dirac strings.

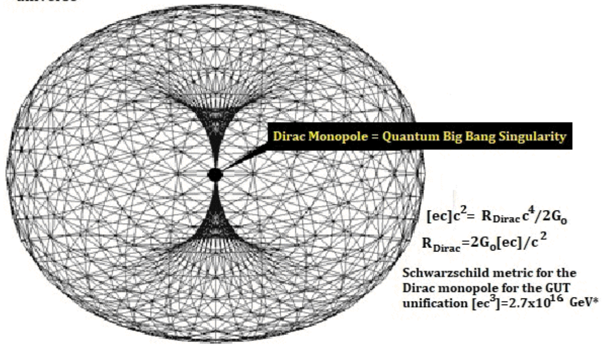
Feynman's path integrals encompass the Dirac string not at the center of the volume harboring the magnetic monopole singularity. Placing the singularity at the center and allowing the two parts of the Feynman derivation of the Dirac quantization condition to be the two hemispheres of a sphere with the magnetic monopole at the center of the sphere as done by the Wu-Yang configuration allows a cylindrical representation of the topology applicable to the entire universe.

As the Dirac string is one-dimensional without any width, the surface area for the magnetic flux of $2(2\pi R^2)$ the magnetic monopole for cylinder radius $\sqrt{2}R$ for surface area $4\pi R^2$ describes the Dirac monopole as the central singularity and magnetic point charge for the cosmology.

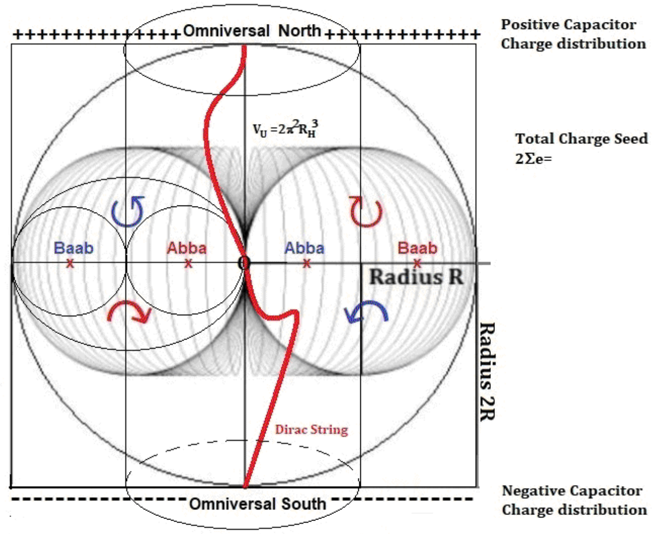
The surface area for the universe is represented by the magnetic flux of the monopole as a one-dimensional form of energy manifesting the Quantum Big Bang from the monopolar singularity, albeit in using a higher dimensional string-membrane epoch characterised by the definition of a minimum spacetime configuration as a quantum fluctuation of the Planck length by the zero point quantum harmonic oscillator, defined as the Weyl-Eps quantum of creation as the inverse of the magneto charge e* in units of the gravitational parameter GM, defining a new charge unit of the star coulomb as the physicalisation of consciousness as a quantum angular acceleration acting on any spacetime volumar.

Quantum Field Theory (QFT) and Quantum Electrodynamics (QED) become enabled to replace the point charge electron with the point charge of the Dirac-'t Hooft-Polyakov magnetic monopole, so allowing the classical electron radius R_e to enter the physical descriptions in the quantum field theories.

The monopolar singularity observer is displaced from the equatorial plane at the center of the earth as the center of the spacetime relative universe



Earth Rotation = Counter clockwise or left handed above the equator
Earth Rotation = Clock-wise or right handed below the equator



Volume of encompassing sphere radius 2R: $V_{Sphere} = 4\pi(2R)^3/3 = 32\pi R^3/3 = 8(4\pi R^3/3)$

Volume of embedded horn torus radius R: $V_{Torus} = (\pi R^2)(2\pi R) = 2\pi^2 R^3$

$$\frac{V_{Sphere}}{V_{Torus}} = 16/3\pi = 1.6976527... = 8(2/3\pi) = 8.\lim\{\delta_F\}$$ **Upper limit for the Feigenbaum Chaos-Complexity Constant** δ_F

About 1.7 horn torus volumars fit into the circumscribing and encompassing spherical volumar, the latter describing 8 spheres of radius R, each sphere inscribed in a cube side R.
4 cubes and 4 spheres radius and side R then define the multidimensional space as hyperspace above and below the universal equatorial plane. The north polar positively charged capacitor plate so becomes the top and the south polar negatively charged capacitor plate the bottom of a hypercube, bounded by 2 infinite planes, albeit intersected in a cyclinder crossed by the Dirac string.

As the Dirac string is one-dimensional without any width, the surface area for the magnetic flux of $2(2\pi R^2)$ the magnetic monopole for cylinder radius $\sqrt{2}R$ for surface area $4\pi R^2$ describes the Dirac monopole as the central singularity and magnetic point charge for the cosmology.

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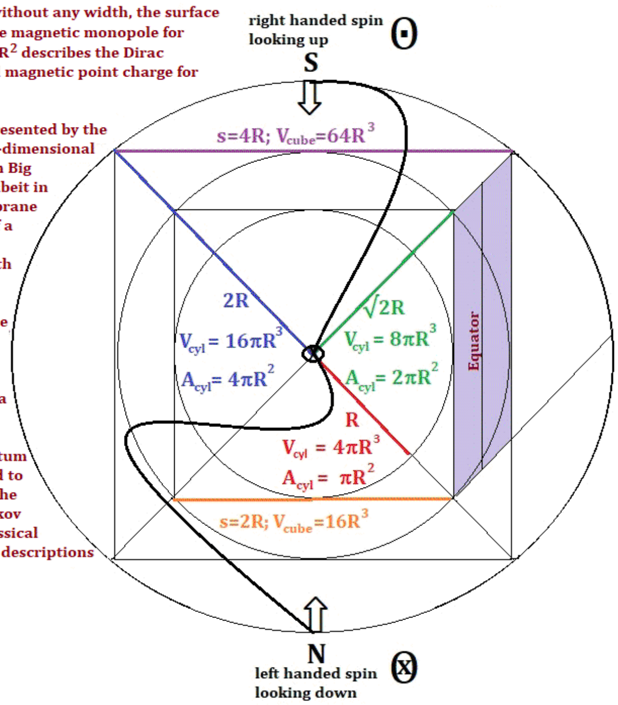
Quantum Field Theory (QFT) and Quantum Electrodynamics (QED) become enabled to replace the point charge electron with the point charge of the Dirac-'t Hooft-Polyakov magnetic monopole, so allowing the classical electron radius R_e to enter the physical descriptions in the quantum field theories.



Dirac's string modeled as spanning the universe for a singular magnetic monopole at the center of the earth

Dirac's monopole can then be defined as a singularity monopole of magnetopole charge $e^*=Q_m$, connecting the two opposite sides of the universe in the Hubble horizon $R_H=c/H_o$ in the Dirac string. The spacetime observer relative universal north pole so is given as the positive charge distribution placed onto the northern hemisphere of the universe in a 3-dimensional surface derivative $dV_4/dR=(2\pi R_H)(\pi R_H^2)=2\pi^2 R_H^3$ from the 4-dimensional hypersphere $V_4(R)=½\pi^2R^4$. The southern hemisphere then becomes the negative charge distribution as a 3-dimensional volumar connecting the Dirac string from its south pole to the north pole. The two infinite capacitor plate surfaces so are given in the higher dimensional string-membrane space which so effectively 'cube' the volume of the 3-dimensional sphere embedded in a 4-dimensional hyperspace as a 3-dimensional surface or membrane space.

The Dirac string starts from, and terminates on, a magnetic monopole. Thus, assuming the absence of an infinite-range scattering effect by this arbitrary choice of singularity, the requirement of single-valued wave functions (as above) necessitates charge-quantization. That is, $4\pi.2q_eq_m/4\pi\varepsilon_ohc=8\pi q_eq_m\{\alpha\}/\{2e^2\}=2ee^*/\varepsilon_ohc=4\pi\alpha e^*/e$ must be an integer n for any electric charge q_e and magnetic charge q_m.

$e^*=n.e/4\pi a=\{n/2\pi\}\{e/2\alpha\}=\varrho\{e/2\alpha\}$ and where $ð_{dirac}$ becomes Dirac's Constant

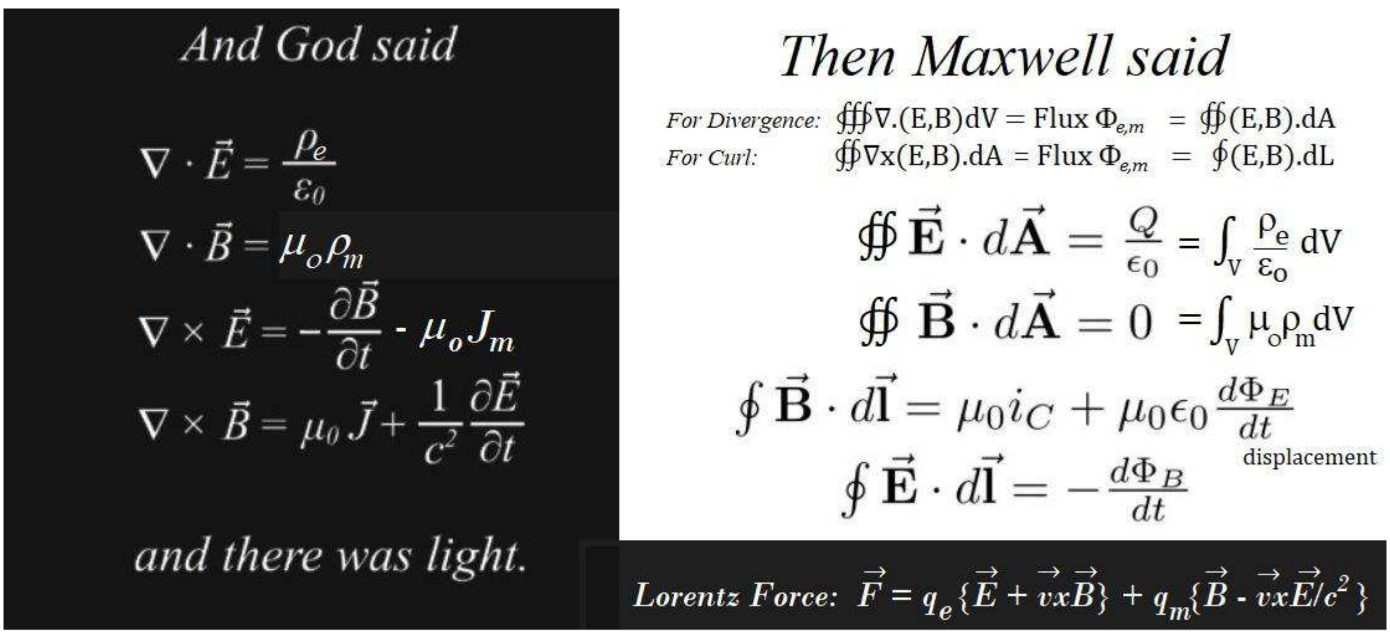
The Dirac Constant for the Universal Cosmology: [EQ1]

$$ð_{dirac} = 8\pi cR_ee/G_oh = 4R_e[ec]/L_{planck}{}^2c^3 = 4.54214\text{x}10^{19}\ [C/m^3s^{-2}]^*$$

in units of the star coulomb defining the magneto charge e* in a universal unit calibration $[C^*]=[C^2/C^*]=[C^2s^2/m^3]$ and where the mensuration units for the gravitational parameter $[GM]=[Nm^2kg/kg^2]=[m^3/s^2]=[C^*]$ as the units for universally defined physicalized consciousness as an angular quantum acceleration (df/dt) acting on any spacetime volumar of units $[m^3]$ as the effect of the Dirac string manifesting at the observer relative center of the universe and as given in the location of the Dirac magnetic monopole at this center as a definition of the Quantum Big Bang Singularity (QBBS).

The derivations consider the magnetic permeability constant of 'free space' $\mu_o=4\pi\text{x}10^{-6}$ H/m as a universal constant related to the impedance of 'free space' $Z_o^2=|\mathbf{E}/\mathbf{H}|^2=|\mu_o\mathbf{E}/\mathbf{B}|^2=|\mu_oc\mathbf{B}/\mathbf{B}|^2=\mu_o/e_o=\{120\pi/c\}/\{1/120\pi c\}=\{120\pi\}^2$ and so describe a finestructure for Maxwell's constant $\varepsilon_o\mu_o=1/c^2\ [m/s]^{2*}$ for the units of universal resistance in a calibrated mensuration system requiring the speed of light 'c' in units of $[m/s]_{SI}$ to transform into units of [m/s]*. The units for the impedance Z_o so become measured in $\surd([H/m]/[F/m])^*=\surd([Js^2/C^2m][Jm/C^2])^*=[V/I]^*=[Js/C^2]^*=[\Omega]^*$ and are observed in the physics of superconductivity in the form of the Quantum Hall effect $n.h/e^2$, the conductance quantum $2e^2/h$ and Josephson frequencies f=n.E/h. The 'free impedance' however relates to a deeper nature found in superconductive phenomena in that a dimensionless or modular resistance implies a natural law in the form of Action=Charge Squared as {h=ee=ee*=e*e*}.

The Action Law is therefore descriptive for the relationship between electric charges of electropoles and magnetic charges of magnetopoles.



Electric flux $\phi_e = \Sigma q_e/\varepsilon_o = r_eV/\varepsilon_o = Q_e/\varepsilon_o$
Magnetic flux $\phi_m = \Sigma q_m(\mu_o c) = r_mV(\mu_o c) = (\mu_o c)Q_m$

Electric flux $\phi_e = \mathbf{\nabla.E} = [J/Cm^2] = \{\Sigma q_e\}[Jm/C^2m^3]=\{\rho_e\}[C^2/Jm] = \rho_e/\varepsilon_o$ for the electric charge density per unit volume
Magnetic flux $\phi_m = \mathbf{\nabla.B} = \{1/c\}\mathbf{\nabla.E} = [Js/Cm^3]= \{\Sigma q_m\}[Js/C^2m] = \mu_o\rho_m$ for the magnetic charge density per unit area

The magnetic charge density for the Dirac monopole is $\rho_m = e^*f$ as a source energy monopolar current $i_{monopolar}$ per unit area as the Maxwell displacement current per unit area

$\mu_o e^* f/A_{ps}=(df/dt)/e^*ec^3$ and $f^*= c/\lambda^*=A_{ps}\,(dt/df)/\mu_o e^{*2}ec^3$

The magnetic flux for the Dirac monopole is
$\phi_m = \mu_o\rho_m = m_{ps}/[ec]_{mod} = m_{ps}c^2/[ec]_{mod}\,c^2 = E_{ps}/[ec^3]_{mod}$
$= [J/Am^3]/\{df/dt\} = [J/Am^3]/\{df_{ps}/dt_{ps}\}= [J/Am^3]$
by modular string-membrane mirror duality $E_{ps}=hf_{ps}=h/f_{ss}$ and $E_{ps}/E_{ss}=f_{ps}{}^2=1/f_{ss}{}^2$ with $\lambda_{ps}.f_{ps}=c=1/\lambda_{ss}f_{ss}$

The Maxwell displacement current for the Dirac magnetic monopole as the QBBS singularity manifests as the 't Hooft-Polyakov 'hedgehog' magnetic monopole in GUT unification as the minimum monopolar mass of $[ec]_{mod}=4.819369011\text{x}10^{-11}$ kg* and energy $[ec]_{mod}\,c^2 = 4.33743211\text{x}10^6$ J* as precisely $2.7\text{x}10^{16}$ GeV*. The upper bound for the 't Hooft-Polyakov monopole is $30[ec]_{mod}=1.301229633\text{x}10^8$ J* or $8.1\text{x}10^{17}$ GeV* with the two bounds related to the gravitational parameter GM partial to the measurements of Newton's gravitational constant G and the energy of the t'Hooft-Polyakov magnetic monopoles of 'Grand-Unification' or GUT energy regimes.

The magnetic flux of the Dirac monopole becomes a mass ratio per unit area expressed as source energy per monopolar unification energy per unit area A with wormhole unit area
$A_{ps}=6\pi^2 r_{ps}{}^2=3\lambda_{ps}{}^2/2=1.5\text{x}10^{-44}\ [m^2]^*$
$\phi_m = \mu_o\rho_m = \mu_o e^* f = m_{ps}/[ec]_{mod} = m_{ps}c^2/[ec]_{mod}\,c^2 = E_{ps}/[ec^3]_{mod} = 1/e^*ec^3$
$= 4.611023179\text{x}10^{-10}$

$\mu_o e^* f/A_{ps}=(df/dt)|_1/e^*ec^3$ and $f^*= c/\lambda^*= (df/dt)|_1/\mu_o e^{*2}ec^3 = 3\lambda_{ps}{}^2(df/dt)|_1/2\mu_o e^{*2}ec^3$
$= 3h^2(df/dt)|_1/2\mu_o[ec] = 7.338671173\text{x}10^{-7}$ Hz* per unit wormhole surface area, time

$t^*=1{,}362{,}644.512$ s* and $\lambda^*=c/f^*=4.087933536\text{x}10^{14}$ m* for radius
$R^*=\lambda^*/2\pi=R(n^*=H_o t^{*\prime}=4.072259032\text{x}10^{-13})=6.506148293\text{x}10^{13}$ m* for a time
$t^{*\prime}=216{,}871.61$ s* into the expansion and thermodynamic evolution of the universe with a coordinate 928,452.09 seconds before the E-googol marker for the classical electron radius modulation.
As the E-googol defines $R_E(n)= 3.43597108\text{x}10^{14}$ m* for a time
$t_E=n_E/H_o=2.1506\text{x}10^{-12}/H_o=1{,}145{,}323.7$ s*; 217,320.8 s* or 2.515287 days

$R_e/R_E=r^*/R^*$ for $r^*=R^*R_e/R^*$
$=(6.506148293\text{x}10^{13})(2.777777\text{x}10^{-15})/(3.43597108\text{x}10^{14})=5.25983302\text{x}10^{-16}$ m*.
This displacement radius defines an effective electron mass via the Compton constant as
$m_e=\alpha h/2\pi cr^*=4.906433293\text{x}10^{-30}$ kg* and reducing to a maximum mass at the QBBS instanton boundary as $m_{eeff}=m_{ps}=\alpha h/2\pi cr_{ps}=2.222\text{x}10^{-20}$ kg*

The Dirac constant calculates as:
$ð_{dirac} =2\alpha e^*/e = 2\alpha/eE_{ps}=4\alpha e m_{planck}\surd\alpha/e m_{electron}$
$=4\alpha\surd\{(hc/2\pi G_o)(2\pi k_e e^2/hc)\}/\{k_e e^2/R_e c^2\}=4\alpha\surd\{k_e e^2/G_o\}\{2\pi R_e c^2/hc\alpha\}$
$= 8\pi R_e[ec]/G_o h\ [C/m^3s^{-2}]^*$
for fine structure unification $G_o=4\pi\varepsilon_o$ for $\surd\{k_e e^2/G_o\}=e/G_o$

The inflaton so draws the data from the information space to manifest the number count for the inflaton from the algorithmic definition of the mathimatia, which is a label for the collected library in the timespace prior to the QBBS.

This number count would count the number of spacetime quanta the inflaton would encompass as a 3-dimensional surface bounding the 10-dimensional string space as the boundary of a Riemann sphere in de Sitter spacetime embedding the Anti de Sitter spacetime in the cancelling of the topological curvatures.

The number of space quanta for the inflaton to use is a googolplex of a number of googols, meaning number counts exceeding 100 digital places.

The 4 googols and 8 data strings generated by particular algorithms and number sequences in the mathimatia were:

$E=26\text{x}65^{61}=1.006208782\text{x}10^{112}$ as data string E*={266561] generating data string F*={136656} from programming code: {Add the End to the Beginning and Start the New Beginning with the Old Beginning}=Line A-Repeat

$F=13\text{x}66^{56}=1.019538764\text{x}10^{103}$ as data string F*={136656} and generating data string G*={673665} from programming code: {Add the End to the Beginning and Start the New Beginning with the Old Beginning}=Line A-Repeat

$G=67\text{x}36^{65}=9.676924497\text{x}10^{102}$ as data string G*={673665} and generating data string H*={5[5+6=11]7366}≠H* from the programming command: {If Sum is reductive}=Line B-End-Line C-Reverse Line A-Repeat

H=Undefined, because 5+6=11=2 is root reductive in the number 11 the first initializing Maria Number in the Maria matrix for the numerical archetypes in time connector dimensions 1, 4 and 7 [Footnote1]

$D=46\text{x}56^{12}=4.375363663\text{x}10^{22}$ as data string D*={465612} from data string E*={266561} from programming code: {If Line A} Repeat

$C=25\text{x}61^{24}=1.761392119\text{x}10^{44}$ as data string C*={256124} from data string D*={465612} from programming code: {If Line A} Repeat

$B=36\text{x}12^{42}=7.619295808\text{x}10^{46}$ as data string B*={361242} from data string C*={256124} from programming code: {If Line A} Repeat

$A=31\text{x}24^{23}=1.722742045\text{x}10^{33}$ as data string A*={312423} from data string B*={361242} from programming code: {If Line A} Repeat

Z=Undefined, because no process of 3[3+U=1]2423 can yield 312423 from data string U24233 with U=-2=-11 for mirror root reduction in the Maria code and programming command: {If Sum is reductive}=Line D-Define H

$H=ABCD=(31\text{x}36\text{x}25\text{x}46)\text{x}(24^{23}\text{x}12^{42}\text{x}61^{24}\text{x}56^{12})=(1{,}283{,}400)\text{x}(7.882123905\text{x}101^{141})$

$=1.011591782\text{x}10^{147}$ from programming code:{if Line D}-End-Define H=ABCD-End-

The end of the googolplex algorithm, self-limited in the Maria matrix and the SEps algorithm limiting the universe defined from Khaibit and the timespace of a Planck-Stoney membrane timespace epoch immediately adjacent to the QBBS in the timespace-spacetime boundary of the Dirac string and the magnetic Dirac monopole so defines four spacetime markers E with F and G to be encompassed by the inflaton boundary H defined as a summation of wormhole quanta comprising the Riemann sphere as a 3-dimensional surface of volume $dV_4/dR=(2\pi R)(\pi R^2)=2\pi^2R^3$ and for a specific redefinition for the radius of the Riemann sphere as the Hubble event horizon $R_H=c/H_o$.

[Footnote 1:]

The Maria Code in the Riemann analysis specifies the partitioning of the decimal monad: {1;2;3;4;5;6;7;8;9;10} around the primary Maria number and SEps-Constant "11" for a prime number algorithm +1+11+10+11+ as 33-tiered segments, transforming the wave mechanics of the SEps number sequence into the 64-codex of a DNA/RNA genomatrix for its potential quadrupling as a 256-codex incorporative of dormant intron/intein coding.
The Maria Code is defined in the distribution of Maria numbers $M_p+99=M_{p+12}$ for $n=½\{\sqrt{(264k+1)} – 1\}$ by the quadratic $n^2+n-66k=0$.

Maria numbers are those integer counters, which contain all previously counted integers as mod|33|. The first Maria number so is 1+2+3+4+5+6+7+8+9+10+11=66=2x33 for Maria#1=11 for k=2. Archetypes 2+3+5+6+8+9=33 so define 6 of the 11 dimensions in the defined omnispace for archetypes 1+4+7=12 completing the remaining 4 time connector dimensions in mirroring the limiting and boundary 12th dimension of Vafa omnispace in the 10th omnispace dimension across the11-dimensional Witten-Mirror as the Maria-Mirror or Maria membrane connecting higher dimensional omni-spacetime to lower dimensional quantum-spacetime.

A repeating Maria matrix is symbolised in this table with symbols ♥=54=Love and ♠=45=Use

11♥	65♠	110♥	164♠	209♥	263♠	…Archetype 2
21♠	66♥	120♠	165♥	219♠	264♥	…Archetype 3
32♠	77♥	131♠	176♥	230♠	275♥	…Archetype 5
33♥	87♠	132♥	186♠	231♥	285♠	…Archetype 6
44♥	98♠	143♥	197♠	242♥	296♠	…Archetype 8
54♠	99♥	153♠	198♥	252♠	297♥	…Archetype 9
65♠	110♥	164♠	209♥	263♠	308♥	…Archetype 2*

[End of Footnote 1:]

The Hubble radius R_H is defined from first principles as the light path of the higher 11-dimensional monopolar light emitted in the QBBS as a monopolar electromagnetic radiation wave, travelling invariantly with lightspeed c in two parallel cosmologies. The first cosmology in a lower dimensional universe is described by a Black Body Planckian Radiator modeled on a thermodynamic cosmological evolution in the hyperbolic negatively curved Anti de Sitter spacetime however enveloped by a de Sitter universe of positive curvature , thereby cancelling the curvatures to result in a flat Minkowski spacetime in 4-dimensional spacetime. This Temperature dependent universe experiences its spacetime evolution in the energy interactions of the QBBS parameter space and engage a gravitational deceleration, which asymptotically will approach but never reach the asymptotic boundary as set by the inflaton.

This becomes a consequence of the higher dimensional universe; whose definitive parameter is the light path of the monopolar light and a light path not restricted by the matter content and the gravitational parameters in their lower dimensional form. The QBBS parameter space allows a parallel evolutionary of the gravitational parameter GM in the unification of the electromagnetic and gravitational parameters applicable to the both of the parallel cosmologies through the definition of the 'QE UniPhysCon' as a physicalized universal consciousness defined in the nature of the Dirac monopole and its extension in the t' Hooft-Polyakov monopole of energy unification. The 'Quantum Entangled' UniPhysCon then is defined by the gravitational parameter GM in the lower dimensional universe, but in the higher dimensional universe the definition of GM translates into the form of any spacetime volumar being acted upon by a radius independent quantum acceleration or a frequency differential over time subject to the modular duality defined in the timespace of the string-membrane-volumars in modular dualities of inversion and mirror properties of the parameters. The motive and 'prime directive' for the QE UniPhysCon so is to transform gravitational potential energy in the form of the GM parameter and the matter content in the universe into physicalized universal consciousness quanta as the source energy quanta defined in the original Weylian wormhole as the effect of the nature of the Dirac monopole changing its status as a undefined source of magnetopolar charge into a defined source of electropolar charge, proportional to the nature of a magnetic charge, however able to manifest as magnetopolar charge as the inverse of the Weyl energy as the original source quantum of the QBBS. An overarching reason and purpose for the existence of the universe as a multiverse within an omniverse from first principles is found in the nature of the universe as a holographic universe requiring a doubling of the physicalized universe from spacetime into timespace to satisfy the initial boundary conditions of the described omni spacetime of the 10-11-12 dimensional cosmology.

The 11-dimensional light path so defines the guiding evolutionary parameter for the thermodynamic expansion of the universe in the invariance of lightspeed c moving further away from the asymptotic gravitationally decelerating universe. But there will be a time marker for the EMMR, as the Electro-Magnetic Monopolar Radiation meets the inflationary boundary at the intersection of the 10^{th} string dimension with the 11^{th} dimension of the Witten mirror in omnispace.

This time marker has been calculated as the inverse of $H_o=c/R_H$ and where H_o defines a nodal Hubble constant varying in time relative to a cycle time coordinate given in $n=H_ot$ or $dn/dt=H_o$. This nodal Hubble constant represents the upper time boundary as the mirror of the wormhole Weyl frequency $f_{weyl}=E_{weyl}/h$ as the source energy quantum of the QBBS.

The inflaton defined the size of the 11-dimensional universe in the nodal Hubble bound as the number of space quanta contained in the Riemann toroidal surface $V_H=2\pi^2R^3$ and as H is known from the googolplex algorithm obtained from the mathimatia of the time space plenum

$V_H=2\pi^2R^3 = H.2\pi^2(r_{weyl})^3 = H(2\pi^2)(\lambda_{weyl}/2\pi)^3$ for

$R_H = \sqrt[3]{H})(\lambda_{weyl}/2\pi) = 1.003849093\text{x}10^{49}(10^{-22}/2\pi)=1.597675453\text{x}10^{26}$ m*
or 16.87610655 Billion lightyears for the Weyl wormhole perimeter of the QBBS
$\lambda_{weyl}=2\pi r_{weyl}= 10^{-22}$ [m*]

This then also defines the nodal Hubble constant H_o as the upper boundary of the inflaton hyperspace as $H_o=c/R_H=1.877728042\text{x}10^{-18}$ [Hz or 1/s]*

The inflaton wave matter speed is then the tachyon speed as the Guth-Weyl inflaton for inflaton velocity $v_{dB}=R_Hf_{weyl}=4.79302635...\text{x}10^{56}$ [m/s]*

And the inflaton hyper-acceleration at instanton time as the Guth-Inflaton wave speed phase acceleration
$a_{dB}=R_Hf_{weyl}^2=1.437907905...\text{x}10^{87}$ [m/s^2]*

The inflaton then connects the birth of the universe at the instanton with the death of the universe as a rebirth in the ending of a first semi-cycle at the Hubble node as the size of the universe defined by the instanton-inflaton coupling.

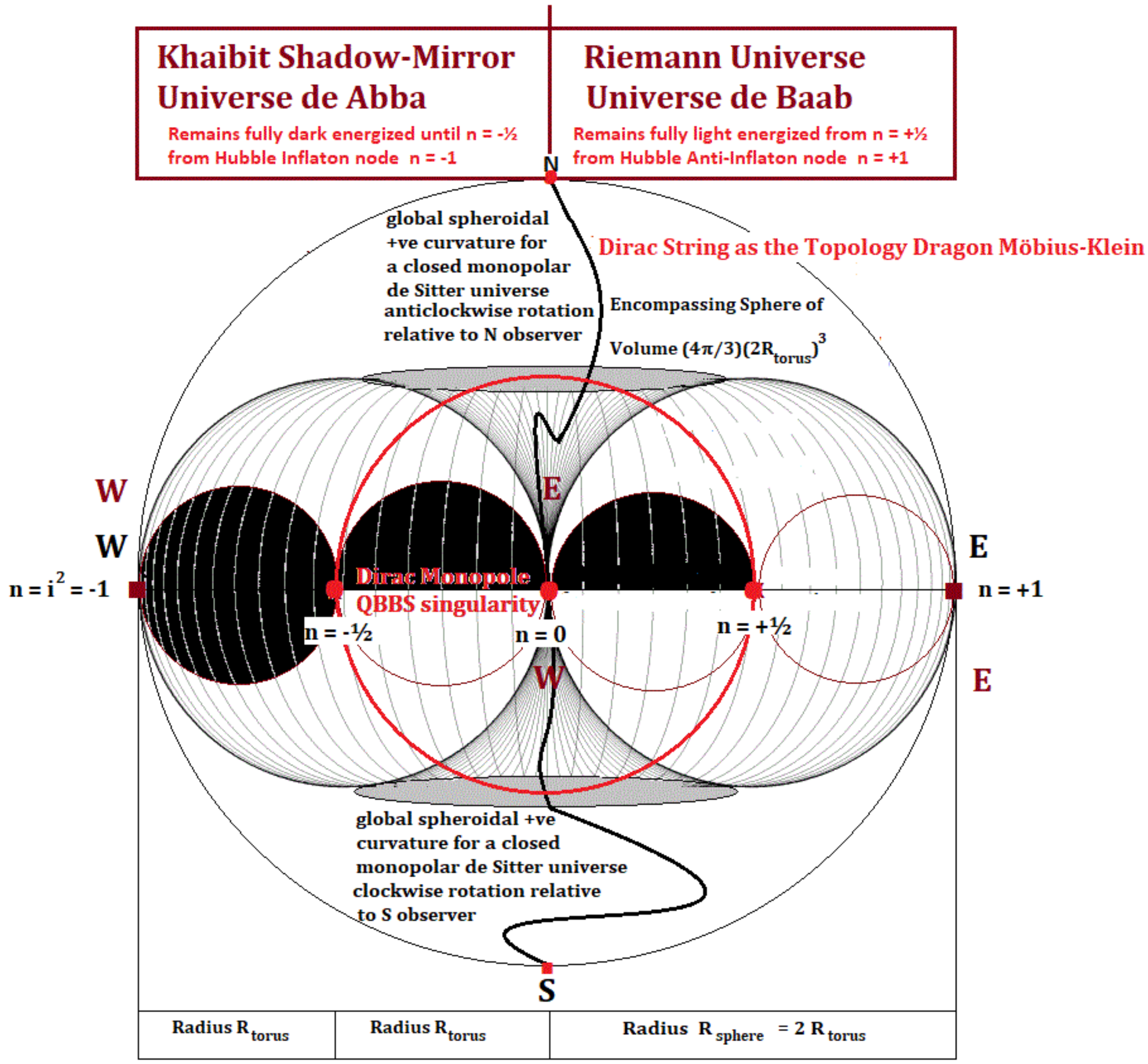
This becomes the effect of the two wormhole images projected by the Hubble Horizon and its image in the shadow-mirror universe Khaibit back to the new created singularity of the QBBS, albeit now having a physical nature replacing the purely mathematical singularity of the mathematical point singularity of the Dirac magnetic monopole. The inflaton mapped the Weylian wormhole onto a new north pole at the inside of the Witten membrane of the 11^{th} dimension and this creation of space naturally became mirrored in creating the shadow-mirror space for Khaibit and a new south pole now no longer trapped in the infinity potential of the Dirac string but finitized in the existence of a physical universe expanding in a lower dimension under gravitational retardation and the laws of nature and oscillating with invariant lightspeed in a higher dimensional cosmology.

The 10-dimensional universe embedded itself in a multiverse of 3 spacial dimensions given by the Riemann manifold, with a time dimension conformally projecting the time connector dimensions 4, 7 and 10 to the 11^{th} dimension of the Witten-Maria mirror across line spacetime as the 4^{th} dimension with the 7^{th} dimension of twistor spacetime and the 10^{th} dimension of the quantum spacetime. The connection between the 10^{th} dimension of string spacetime in the quantum universe as a Dirichlet brane so forms the mirror image for the original 1^{st} time dimension in line spacetime changing into a 1^{st} space dimension with a quasi-spacetime in flatland for the second dimension assuming a time like nature to mirror the lower dimensional flatland in a higher dimensional flatland in a 11D-9D =2D dimensional root reduction.

The south pole in Khaibit so is also the south pole of the universe for a total extent of the inflaton as twice the Hubble event horizon and as three new singularities, each one separated from the adjacent one by one Hubble radius R_H. This now renders the midpoint in the expansion of the universe at a radial displacement of $½R_H$ as a rather special displacement coordinate, as at this point a new center for the universe must be defined to allow the Weyl wormhole of the QBBS to function as the south pole for the north pole at the intersection of the boundary of the Riemann universe with the Witten mirror. The Riemann universe as a 3-dimensional surface volumar embedding a 7-dimensional twistor spacetime is also named as Baab or Gate or Mother Black Hole to distinguish it from an ordinary 3-dimensional volumar within a 4-dimensional spacetime volumar.

The Dark Energy coupled to the Light Energy of a Quantum Entangled Mirror Universe

This midpoint will be imaged in Khaibit and allow the manifestation of Dark Energy from the mirror universe to affect and participate in the cosmological evolution of the physical universe.
The displacement of the QBBS from a coordinate $½R_H$=function(n) must so define a scale factor for the expansion of the universe in the collinear two directions from the QBBS coordinate to the south pole in Khaibit and the north pole in Baab separated by precisely 4 Hubble radii, which geometrically become the total size of the 3-dimensional Riemann surface-volumar.
The timeless shadow universe in three imaged spacial dimensions so is defined as a projection of its information onto the surface boundary of a 3-dimensional surface as the Riemann volumar in time as the 4-dimensional spacetime of Minkowski, Riemann and Einstein and becomes the holographic universe of ‘t Hooft, Bekenstein, Thorn, Bousso, Maldacena and Susskind.



The coordinate $\frac{1}{2}R_H$=function(n) for the expansion of the universe in the instanton-inflaton coupling with scale factor a is

$R(n) = aR_H = R_H(n/(n+1)$ for a scale factor $a=(n/(n+1)$ with $dn/dt=H_o$ and parametrization for velocity $v_H(n)$

$v_H(n) = dR(n)/dt = (dR/dn).(dn/dt) = R_H H_o/(n+1)^2 = c/(n+1)^2$ and a parametrization of acceleration $a_H(n)$

$a_H(n) = d^2R(n)/dt^2 = (dv_H(n)/dn).(dn/dt) = -2R_H H_o^2/(n+1)^3 = -2cH_o/(n+1)^3$

Then for n=½, the Hubble radius for the higher dimensional universe will be the invariant light path of the EMMR, travelling at light speed c for a displacement from the QBBS of as $nR_H=\frac{1}{2}R_H$. and being emitted from the first wormhole coordinate of the instanton as the inflaton.
The end of the inflation period is however defined in the Weyl wormhole frequency of $f_{weyl}=c/\lambda_{weyl}=3\times10^{30}$ [Hz]* for an inverse time $t_{weyl}=3.333\ldots\times10^{-31}$ [s]* defining the time coordinate for the second wormhole at the Hubble event horizon reflecting or imaging the light path of the inflaton's

EMMR to then meet and intersect the instanton's light path at cycle coordinate n=½ t_{weyl} [s]* after the instanton's light path had reached this n cycle coordinate.

The lower dimensional light path $R(n)=ct=nc/H_o=$ is equal to the light path of the EMMR so just for a time t_{weyl}, after which the EMMR light path continues to increase the separation between the two displacements due to the gravitational retardation of the initial QBBS initial boundary conditions for the energy-matter-charge content of the universe.

For cycle coordinate n=1, the EMMR light path has reached the Hubble node, but the expansion of the lower dimensional universe under scale factor a=n/(n+1)=1/(1+1)=½ defines the critical halfway point for the onset of the dark energy from Khaibit and the shadow universe intersecting the light energy of the Riemann universe Baab.

The size of the universe at cycle coordinate n=1 is
$R(1)=½R_H=7.988377265 \times 10^{25}$ [m]* or 8.438053275 Gly for a 'civil year' of 365.2425 mean solar days and 1 Billion lightyears equal to 1 Gly.

The size of the universe at cycle coordinate n=½ is
$R(½)=(½.⅔)R_H=⅓R_H=5.325584843 \times 10^{25}$ [m]* or 5.62536885 Gly.

The dark energy so began to interact with the light energy 5.625 billion years after the Quantum Big Bang Singularity as the QBBS.

The time marker for the EMMR meeting the 11-dimensional boundary so is
$1/H_o = 5.325584843 \times 10^{17}$ [s]* or a light path of 16.8761 Billion lightyears for a 'civil' year of 365.2425 mean solar days. When this event occurs, the EMMR will both refract and reflect its light path. The refraction will define a new 11-dimensional boundary in moving the Witten mirror into a previously undefined part of the spacetime created by the inflaton-instanton coupling, however defined in the timespace of the monopolar singularity as the precursor for the QBBS coupled to the Dirac string. This event will naturally become imaged in the 12-dimensional Vafa omni spacetime of Khaibit as the shadow-mirror universe and the reflection of the light path of the EMMR will begin a return journey to meet the asymptotically expanding Anti de Sitter universe in a baryonic dark matter intersection nexus.

The nexus point for the evolution of the seedling universe as a protoverse so is defined as the intersection of the EMMR light path beginning its journey from the wormhole of the instanton and ending it at the location of the wormhole of the inflaton one half-cycle of period $1/H_o=R_{Hubble}/c=16.876$ billion lightyears.
At this cycle time coordinate a second universe was born from the instanton in the creation of a multiverse from the seedling universe.
This second universe is collocal with the protoverse, but its initial boundary parameters are a function of the seedling parameters depending on a superposed asymptotic cosmology for the protoverse to have completed its evolution in spacetime in satisfying its boundary conditions set in the generating timespace of the imaginary space, albeit ordered in principalities of time as events as definitions.
{Ref.:
https://www.academia.edu/39210286/The_Origins_of_the_Mathimatia_and_Four_Pillars_of_Creation ;

https://www.academia.edu/39210281/The_Beginning_of_Space_in_Time }

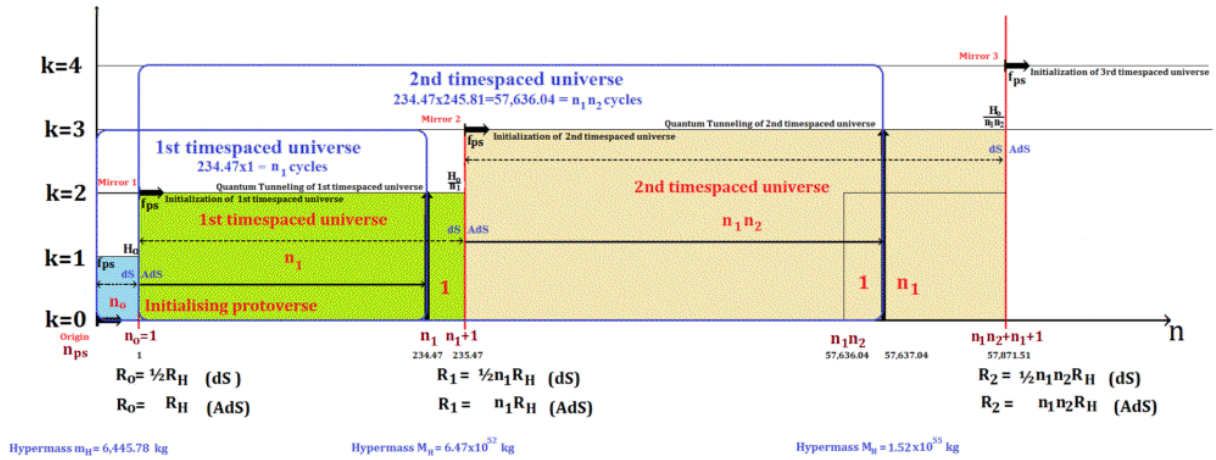
The evolution of the multiverse, embedded in an omniverse is based on the nature of the QBBS as emerging from a wormhole singularity, physicalizing the Dirac monopole mathematical and one-dimensional originator from timespace.
All cosmological black holes are limited in their metric inertia in their Schwarzschild radii.
The entire universe is a 'Black Holed Hierarchy', but there are black holes evolving with the matter content of the universe as physicalized potentials of the QBBS and there are ‘primordial’ black holes such as the Weyl wormholes of the instanton-inflaton quantum entanglement.

Primordial black holes are known as 'Boundary' Black Holes’ and those engage in their own black hole evolution as so called 'Extremal Strominger Branes'.
This allows definition of the Weyl wormhole as a Strominger boundary wormhole brane of the instanton and the QBBS and of a mass of $m_{weyl}=\{\lambda_{weyl}c^2/4\pi G_o\}$ = 6445.7753 kg*. The QBBS of the creation of spacetime so was seeded by the weight of about one large or two elephants in the gravitational field of the earth as about 6.5 metric tons. Strominger extremal black holes are massless in the sense that their wormhole masses can be expressed as frequency energy states in
$m_{weyl}=E_{weyl}/c^2=hf_{weyl}/c^2=kT_{weyl}/c^2$ and that such extremal black holes do not emit Hawking radiation in evaporating their matter content over the course of large cosmological time scales.

At the Quantum Big Bang instanton, a baryonic restmass seedling M_o of about 1.814×10^{51} kg* became distributed in spacetime vortices given in a de Broglie wave matter inflaton.
This inflaton defined the Hubble horizon as a wavefunction for the holistic holographic de Sitter universe and set a supercluster scale for a ‘daughter black hole’ known as a Sarkar Schwarzschild metric, embedded within a ‘mother black hole’ defined in the Hubble event horizon as a function of the total mass content of the QBBS as defined from the timespace and manifesting in spacetime.
The Sarkar black hole is an extremal black hole and forms the upper limit for gravitational scale interaction between galactic superclusters.
This shows that the universe will become isotropic and homogeneous beyond the supercluster scale and so manifest the 'Cosmological Principle' in the uniformity of the topology and structure of the universe in cosmological models. The distribution of inertia then takes the form of voids and textures akin a honeycomb geometry and where the individual 'cosmic cells' span across scales of about 470 million lightyears, which so define the Sarkar metric.
But the Sarkar Black Hole is extremal and so is a limiting Black Hole in having a mass M_o as the evolution of the wormhole mass of the QBBS. It does not exist as a 'normal' black hole, such as found at the core of galaxies, which describe a M-Sigma relation in a general ratio of 0.1%-0.2% between the galactic core inertia and the total galactic mass.

The overall black hole evolution takes about 4 trillion years as a Strominger brane to satisfy the boundary condition for the Sarkar black hole to become massless after the completion of the spacetime evolution of the Weyl brane of the instanton merging with the wormhole of the inflaton in the size of the mother black hole of the Hubble event horizon at the boundary of superstring spacetime in 10 dimensions to the intersection with the membrane spacetime of omnispace in the Witten-Maria mirror.

For r_{ps} to grow to the Hubble event horizon R_H in a time $t=n/H_o=nR_H/c$, the wormhole mass m_{ps} must increase in the n-cycle function for the gravitational parameter $G(n)Y(n)=G_oM_o=G_oX^nM_oY^n$ for$(XY)^n=X^nY^n=1$ and this function is proportional to the increase of the wormhole radius for the instanton growing into the size of the Hubble event horizon as the mirror wormhole of the inflaton.

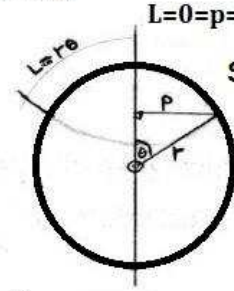


$r_{ps}Y^n=R_H$ for $r_{ps}.e^{n\ln Y}=R_H$ for $n\ln Y=\ln\{R_H/r_{ps}\}$ and
$n_{critical} = \ln\{R_H/r_{ps}\}/\ln Y=\ln\{1.5977\times10^{26}/1.5916\times10^{-23}\}/\ln\{1.618034\}$
$=\ln(2\pi n_{ps})/\ln Y=234.4715\ldots$, implying that 234.4715..Hubble cycles are required for the asymptotic expansion of the lower dimensional universe to enable the second universe, born when the EMMI light path reached the Witten-Maria mirror membrane of the 11th dimension to quantum tunnel into the subsequent universal cycle. As 234.4715 Hubble semi-cycles are 234.4715x16.876 Gy=3.957 Trillion years for a time, the protoverse would be destined to exhaust its nuclear fuel supplied by stellar and galactic evolution and in the transmutation of the chemical and atomic elements.

Radius of Curvature r(n) with Salefactor 1/a=1+1/n in dS as a function of cycletime coordinate n

$$\boxed{r(n) = r_{max}\left(\frac{n}{n+1}\right) m^* \quad \text{and} \quad n = H_o t}$$

L=0=p=θ for r=r



S.A. $= 4\pi r^2$

$L = 2.\pi r$

$\sin\theta = \frac{p}{r}$

$\theta = \frac{L}{r}$

The volume of the 4-D spacetime can however be found by integrating the surface area S.A. via arclength L, with L being an intrinsic parameter of the 3-D surface. $dL = r.d\theta$

$$\boxed{V_{Universe} = \int_0^{r\pi} 4\pi p^2\, \partial L = 2\pi^2 r(n)^3 \quad \text{for a local spheroidicity}}$$

$4\pi\int_0^{\pi} r^3 \sin^2\theta\, d\theta = 4\pi r^3 \int_0^{\pi} \tfrac{1}{2}\{1-\cos 2\theta\}d\theta = 2\pi^2 r(n)^3$ for the asymptotic 4/10D dS 'flatness' cosmology within the nodal Hubble 5/11D AdS Universe

This classical macrovolumar is quantized in the microvolumar quantum of the Unified Field in 8π radians or 840°-(-600°)=1440°

$$\tfrac{1}{4}\pi\int_{-600°}^{840°} \{\sin(\tfrac{1}{2}[3x])-\cos(\tfrac{1}{4}[3x])\}^2\, dx = \tfrac{1}{4}\pi\int_{-10\pi/3}^{14\pi/3} \{\sin^2(3x/2)+\cos^2(3x/4)-2\sin(3x/2)\cos(3x/4)\}\, dx$$

$$= \tfrac{1}{4}\pi\int_{-600°}^{840°} \{\tfrac{1}{2}(1-\cos[3x])+\tfrac{1}{2}(1+\cos\tfrac{1}{2}[3x] - \sin\tfrac{1}{2}[9x] - \sin\tfrac{1}{4}[3x]\}\, dx$$

$$\left\{ \text{by classical volumar of revolution (vor)} \quad V_{vor} = \int \pi y^2\, dx \quad \text{for } y=r \right\}$$

$$= \tfrac{1}{4}\pi\Big[\theta - \sin[3x]/6 + \sin\tfrac{1}{2}[3x]/3 - 2\cos\tfrac{1}{2}[9x]/9 - 2\cos\tfrac{1}{2}[3x]/3\Big]_{-10\pi/3}^{14\pi/3} = \tfrac{1}{4}\pi(8\pi) = 2\pi^2$$

The amplitude for the universal wavefunction becomes proportional to the quantum count of the space occupancy of a single spacetime quantum and as source energy (VPE or Vortex Potential Energy) quantum and as a consequence of the preinflationary supersymmetry of the F(x)=sinx +sin(-x) = 0 wavefunction defining this singularity (symbolised as the symbol for infinity).

A higher dimensional surface is Moebian connected to differentiate the quantum mechanical 'boundary' for the quantum tunneling of the macrocosmos as a magnified holofractal of the well understood microquantumization.

It then is the experienced and measured relativity of time itself, which becomes the quantum wall, with the 'reducing thickness' of the quantum boundary correlating with the evolution of the multiversal structure in the phase shifted time intervals defining the individual universes.

The critical density of the universe derives from the total mass density of the QBBS instanton-inflaton coupling as

$\rho_{critical}=M_{universe}/V_{universe}=M_H/2\pi^2R_H^3=c^2/4\pi^2G_oR_H^2=H_o^2/4\pi^2G_o$ for the Riemann-Baab 3D-surface universe and as $\rho_{critical}=(3\pi/2)H_o^2/4\pi^2G_o=3H_o^2/8\pi G_o$ for the 3D-volumar universe.

The primordial Mass-Charge definitions from the Logos mathimatia in timespace

Electromagnetic Fine structure: $\alpha_e=2\pi ke^2/hc = e^2/2\varepsilon_o hc = \mu_o e^2c/2h$

$= 60\pi e^2/h$ (Planck-Stoney-QR units *)
Gravitational Fine structure (Electron): $\alpha_g = 2\pi G_o m_{electron}^2/hc$
$= \{\alpha_g/\alpha_{planck}\} = \{m_{electron}/m_{planck}\}^2$
Gravitational Fine structure (Primordial Nucleon): $\alpha_{nucleon} = 2\pi G_o m_c^2/hc$ for m_c
$= m_{planck}.\alpha_e^9$
Gravitational Fine structure (Planck Boson): $\alpha_{planck} = 2\pi G_o m_{planck}^2/hc = 1$
Gravitational Fine structure unification: $\{\alpha_g/\alpha_{planck}\} = \{m_{electron}/m_{planck}\}^2$
$= \{m_{electron}/m_c\}^2\alpha_e^{18}$

Mass Seed = $M_o = \surd\{E.m_c^2.m_{planck}^2/m_{electron}^2\} = m_c\surd\{E\}\{\alpha_{planck}/\alpha_g\}$ for googol space quanta counter $E=26\text{x}65^{61} = 1.006...\text{x}10^{112}$.

Charge Seed = $C_o = \surd\{E.e^2/\alpha_e\} = \surd\{E.hc/2\pi k_e\} = \surd\{E.hcG_o/2\pi\} = \{2e\}.\{M_o/m_c\}.\{E_{ps}.e\}$
$= \{2e\}.\{M_o/m_c\}\{e/e^*\}$ for $E_{ps}=1/e^*$

Source energy quantum E_{ps} = {Quantized charge in Dirac monopole as dipole}{Number of elementary charged particles}

$E_{ps} = 1/e^* = \{C_o/2e^2\}.\{m_c/M_o\} = \{C_o/M_o\}.\{m_c/2e^2\}$

$= \{\surd\{E.e^2/\alpha_e\}/\{m_c\surd\{E\}\{\alpha_{planck}/\alpha_g\}\}.\{m_c/2e^2\}$

$E_{ps} = \{1/2e\}\surd\{\alpha_g/\alpha_{planck}\alpha_e\}$

$E_{ps} = 1/e^* = hf_{ps} = h/f_{ss} = h^2/E_{ss} = m_{ps}c^2 = kT_{ps} = 1/2e\surd\alpha_e\}\{m_{electron}/m_{planck}\}$

$= \surd\{\alpha_g/\alpha_{planck}\alpha_e\}/2e = G_o m_{electron}/2e^2$

$1/E_{ps} = e^* = 2R_e c^2 = \surd\{4\alpha hce^2/2\pi G_o m_e^2\} = 2e\surd\alpha_e[m_{planck}/m_{electron}]$
$= 2e\surd\{\alpha_e\alpha_{planck}/\alpha_g\} = \{2e^2/m_{electron}\}\surd(k_e/G_o) = 2e^2/G_o m_e = e^2/2\pi\varepsilon_o m_e$ for $G_o=1/k_e=4\pi\varepsilon_o$
for a cosmological unification of fine structures in unitary coupling $E^*.e^*=1$ in $[Nm^2/kg^2]=[m^3s^{-2}/kg]=1/[Nm^2/C^2]=[C^2m^{-3}s^2/kg]$ for $[C^2]=[m^6/s^4]$
and $[C]=[m^3/s^2]$. $E_{ps} = 1/E_{ss} = 1/e^* = \surd\{\alpha_g/\alpha_e\}/2e = G_o m_e/2e^2$

The Charge seed is proportional to the number of particles in Universe as $\{M_o/m_c\}$ and where the primordial nucleons are all ylemic neutrons of spin ½ and which so define their radioactive decay products in a charge twin of positively charged protons and negatively charged electrons and with uncharged antineutrinos.

The unification between dipolar electropolar Coulomb charge 'e' and monopolar magnetopolar Star-Coulomb charge 'e*' unifies the Consciousness quantum $E_{ps}=1/e^*$ in the nature of dipolar electric charge in the redefinition of the Dirac string and the Dirac magnetic monopole from timespace into spacetime. In the universe the consciousness quantum manifests as the inverse of the electric charge quantum 'e', so cancelling any dipolar magnetic effects of the monopolar charge e* in Khaibit. In the universe this monopolar equivalence manifests in its elementary form as the diameter of the electron multiplied by the square of the speed of light c^2.

The Dark Matter energy so becomes defined in the Universal Consciousness Quantum 'UniPhysCon' → E_{ps} = 1/e* = 1/{$2R_ec^2$} = 1/{Volume [$2\pi^2 R_{RMP}{}^3$]}x{Angular Acceleration df/dt} for the dark matter elementary consciousness particle RMP=Restmass-Photon $R_{RMP} = \sqrt[3]{\{e^*.dt_{ss}/d_{fps}|_{resonance}/2\pi^2\}}$

$R_{RMP} = \sqrt[3]{\{(e^*/2\pi^2)/(9\text{x}10^{60})\}}$ = 1.411884763x10^{-20} m* and of spin quantum -1 and a wavelength $\lambda_{RMP}=2\pi R_{RMP}$=8.8711336x$10^{-20}$ m*

The dark matter particle has a mass of $m_{RMP}=h/c\lambda_{RMP}$=2.50500367x10^{-23} kg* and an energy of 2.2545033xd10^{-6} J* or 14,034.0 GeV* or 14.034 TeV* (13.999 TeV_{SI}) as the maximum capacity for the Large Hadron Collider (LHC) at CERN, the international research center for probing the universal energy scales in particle accelerators in Geneva, Switzerland.

Magneto-Monopolar charge quantum $e^*/c^2 = 2R_e$ ⇐ super-membrane displacement transformation ⇒ $\sqrt{\alpha}.l_{planck} = e/c^2$ as Electropolar charge quantum ......[EQ.2]

Dirac's quantization condition crystallizes naturally from the relationship between the classical electron radius and its relation to the Compton radius for the oscillation scale for the electron exchanging the nature of the Dirac monopole as a monopolar singularity in timespace and the QBBS with the classical electron scale from the wormhole radius r_{ps} to the classical electron radius $R_e=h\alpha/2\pi cm_{electron}=\alpha R_{compton}$ in spacetime.

Dirac's quantization condition derived in its historical context before; states Magnetic monopole q_m = n.e/2α={n/N}{e/2α} for electropolar charge e quantized in integer n equal to the magnetopolar charge q_m multiplied by 2α.

Dirac's magnetopolar charge q_m=g is however defined as:

$e^* = 2R_ec^2 = 2\alpha R_{compton}c^2 = 1/E_{ps} = \{2e\}\sqrt{\{\alpha_{planck}\alpha_e/\alpha_g\}}$

for the result $e^*/2\alpha_e = R_{compton}c^2 = \{e/\alpha_e\}\sqrt{\{\alpha_{planck}\alpha_e/\alpha_g\}}$

for quantized (2e) = $e^*\sqrt{\{\alpha_g/\alpha_{planck}\alpha_e\}} = e^*\{m_{electron}/m_{planck}\}/\sqrt{\{\alpha_e\}}$

$= e^*\{m_{electron}/m_c\}\sqrt{\{\alpha_e{}^{17}\}}$

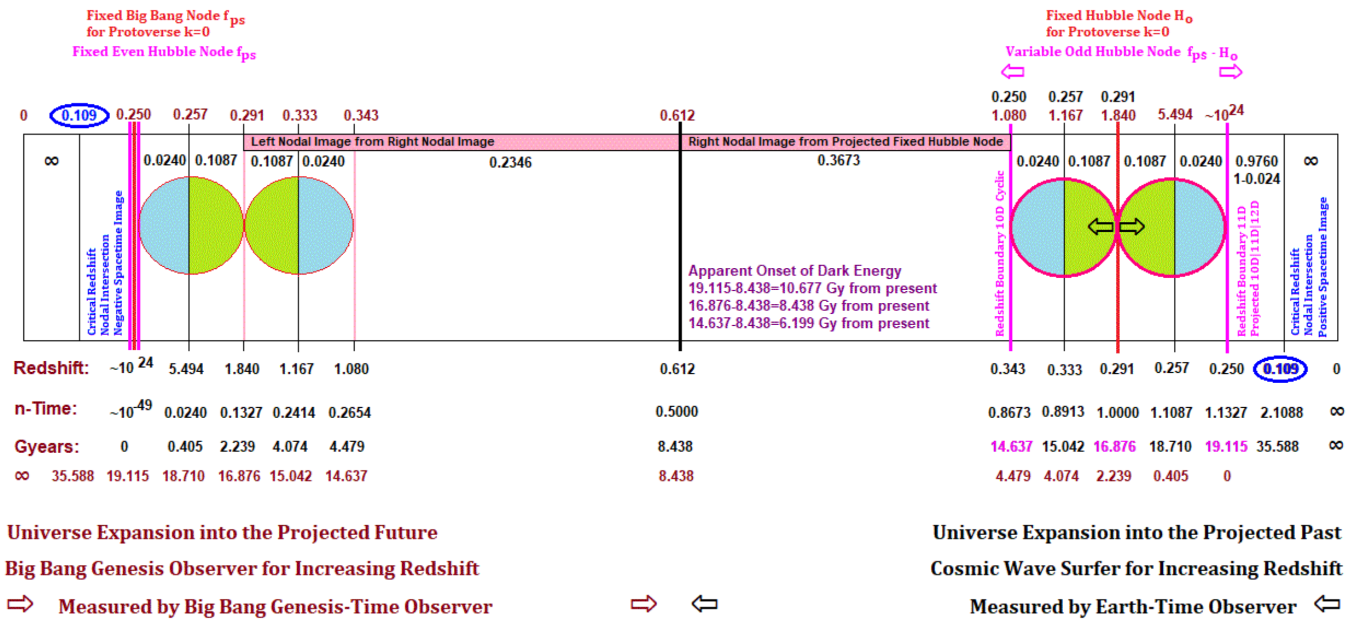
Magneto-Monopolar singularity charge quantum $e^*\sqrt{\{\alpha_{planck}\alpha_g/\alpha_e\}}$ = 2e as Dipolar Electropolar charge quantum (2e) ......[EQ.3]

The singularity magnetic monopole of the QBBS becomes the point charge elementary electron in Quantum Field Theory (QFT) and Quantum Electro-Dynamics (QED). The classical electron is then enabled to physicalize the Dirac string from timespace in the created spacetime quantizing the previously infinite Dirac string in the inflaton as two boundary wormhole singularities in multiples of the wormhole radius $r_{ps}=\lambda_{ps}/2\pi$ quantized in the classical electron radius in $360R_e=10^{10}\lambda_{ps}$ as a classical monopolar bound in the spacetime quanta count E.

The ylemic universe and the cosmic temperature evolution for the birth of stars and galaxies

Many questions raised in the avenues of astrophysics and cosmology engage the quantum physics of the early universe following the QBBS.

When did the first stars and galaxies form from their black hole seeds and how did the dark matter cosmology change its nature from a decelerating universe into a universe apparently dominated by dark energy, responsible for an apparent acceleration of the universe, beginning about halfway through the age of the universe in its thermodynamic evolution?



Fixed Big Bang Node fps
for Protoverse k=0
Fixed Even Hubble Node fps
Fixed Hubble Node Ho
for Protoverse k=0
Variable Odd Hubble Node fps - Ho
0 0.109 0.250 0.257 0.291 0.333 0.343 0.612
0.250 0.257 0.291
1.080 1.167 1.840 5.494 ~10^24
Left Nodal Image from Right Nodal Image
Right Nodal Image from Projected Fixed Hubble Node
∞ 0.0240 0.1087 0.1087 0.0240 0.2346 0.3673 0.0240 0.1087 0.1087 0.0240 0.9760 1-0.024 ∞
Critical Redshift
Nodal Intersection
Negative Spacetime Image
Apparent Onset of Dark Energy
19.115-8.438=10.677 Gy from present
16.876-8.438=8.438 Gy from present
14.637-8.438=6.199 Gy from present
Redshift Boundary 10D Cyclic
Redshift Boundary 11D
Projected 10D|11D|12D
Critical Redshift
Nodal Intersection
Positive Spacetime Image
Redshift: ~10^24 5.494 1.840 1.167 1.080 0.612 0.343 0.333 0.291 0.257 0.250 0.109 0
n-Time: ~10^-49 0.0240 0.1327 0.2414 0.2654 0.5000 0.8673 0.8913 1.0000 1.1087 1.1327 2.1088 ∞
Gyears: 0 0.405 2.239 4.074 4.479 8.438 14.637 15.042 16.876 18.710 19.115 35.588 ∞
∞ 35.588 19.115 18.710 16.876 15.042 14.637 8.438 4.479 4.074 2.239 0.405 0
Universe Expansion into the Projected Future
Big Bang Genesis Observer for Increasing Redshift
Measured by Big Bang Genesis-Time Observer
Universe Expansion into the Projected Past
Cosmic Wave Surfer for Increasing Redshift
Measured by Earth-Time Observer

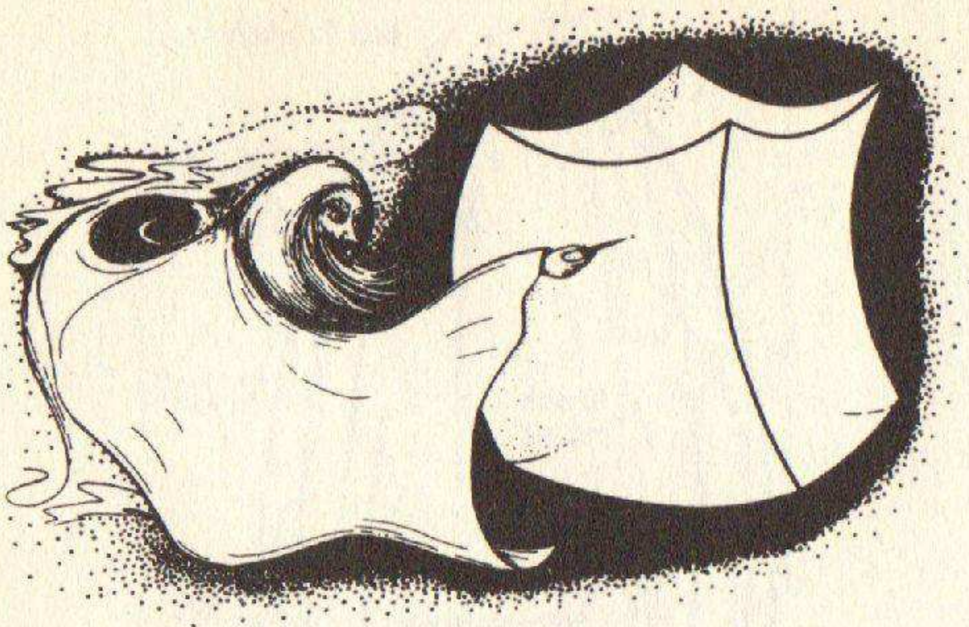
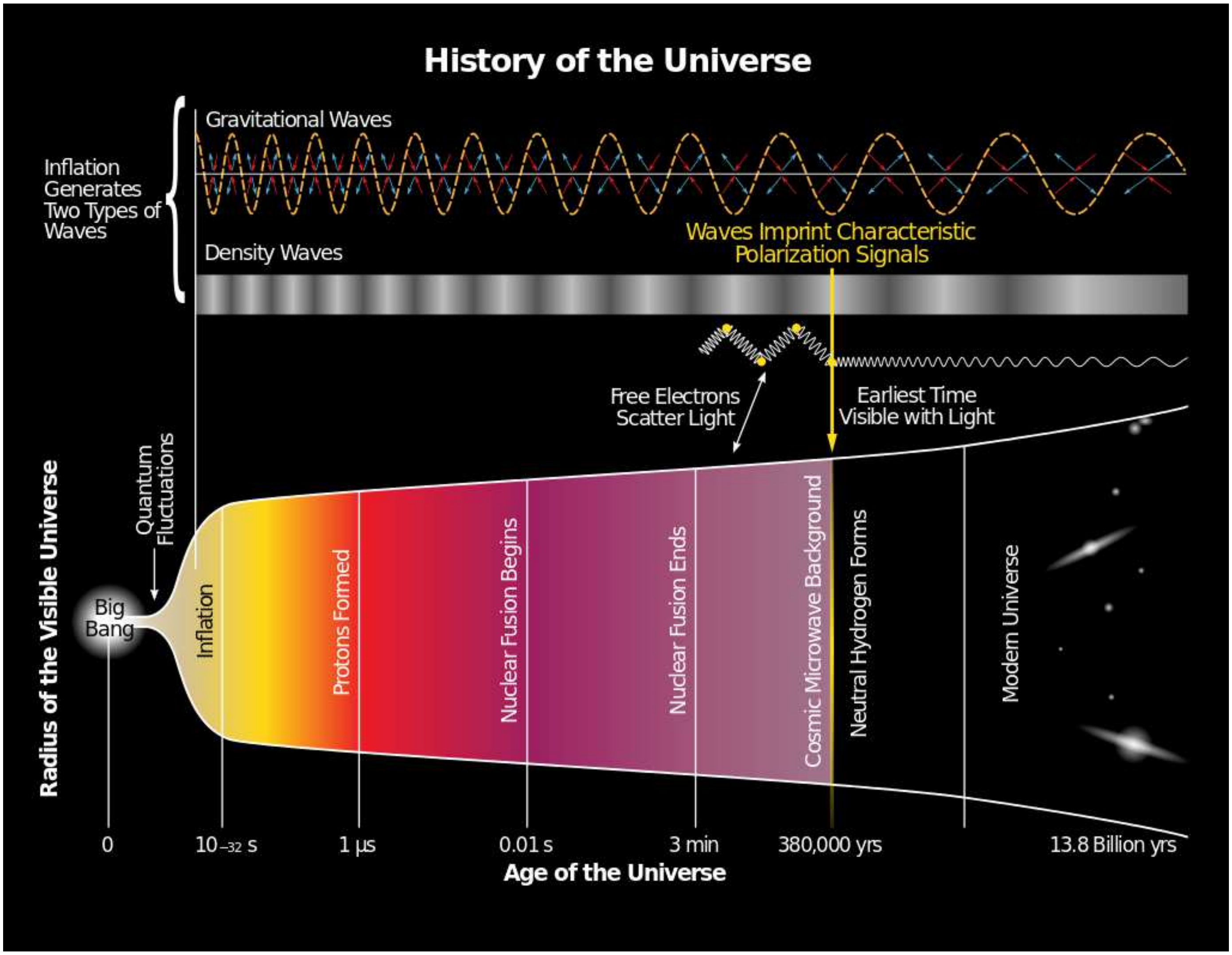
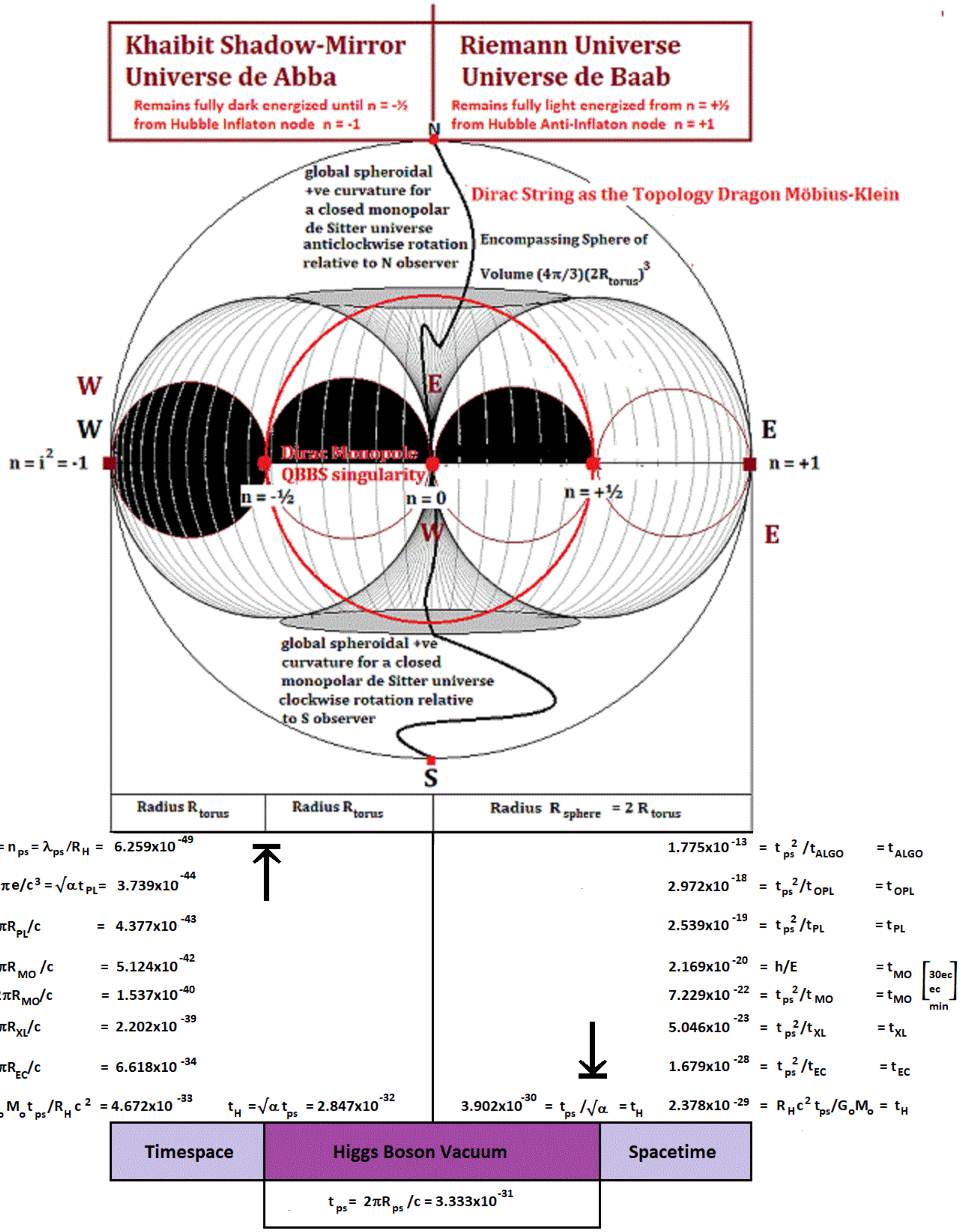


Fig. 1.30. In order to produce a universe resembling the one in which we live, the Creator would have to aim for an absurdly tiny volume of the phase space of possible universes – at most about $1/10^{10^{123}}$ of the entire volume. (The pin, and the spot aimed for, are not drawn to scale!)



The answers are found in the timespace definitions to provide the initial boundary conditions for the spacetime instantaneity defined in the instanton-inflaton coupling.

The timespace defined five superstring classes, which defined the Zero-Point Planck Harmonic Oscillator from the undefined timespace to the five superstring classes in the timespace to be then mirrored by the Dirac monopole at the QBBS singularity as a double-sided Möbius-Klein supermembrane into spacetime. At the Dirac singularity, the point particular nature became 'stringed' with the Weyl-Eps boson forming the physicalized manifestation of the Planck boson string for the initializing definition by the Logos mathimatia. The Planck Harmonic Zero-Point Oscillator so became the Weyl-Harmonic Zero-Point Oscillator in a conformal mapping of the timespace onto the QBBS supermembrane and then manifesting the five superstring classes of the timespace in the spacetime.



String-Membrane Boson	Classification	Realm	Time Formula	Manifest Time	Energy hf=h/t J*/GeV*	Displacement Scale

Algo-Boson	Time=Frequency $t_{ps}=1/f_{ps}=f_{ss}=1/t_{ss}$	Abstract Definiton	$n_{ps}=\lambda_{ps}/R_H$ $n_{ps}=H_o t_{ps}=ct_{ps}/R_H$	6.256×10^{-49}	1.066×10^{15} 6.635×10^{24}	$R_{ALGO}=2\pi L_{ALGO}=1.878\times10^{-40}$ $L_{ALGO}=r_{ALGO}=2.989\times10^{-41}$
Planck-Oscillation Boson	Zero-Point Quantum Fluctuation	Timespace	$t_{OPL}=\surd\alpha\ t_{ps}$ $\surd\alpha\ R_{PL}/c=e/c^3$	3.739×10^{-44}	1.783×10^{10} 1.110×10^{20}	$R_{OPL}=2\pi L_{OPL}=1.122\times10^{-35}$ $L_{OPL}=r_{OPL}=\surd\alpha L_{planck}=1.786\times10^{-36}$
Planck-Boson	string class I Planck open	Timespace	$t_{PL}=2\pi R_{PL}/c$ $R_{PL}=\surd\{hG_o/2\pi c^3\}$	4.377×10^{-43}	1.523×10^{9} 9.484×10^{18}	$R_{PL}=2\pi L_{planck}=1.313\times10^{-34}$ $L_{planck}=r_{PL}=2.090\times10^{-35}$
Monopole Boson	Maximum 30[ec] for gravity GM↔ $2G_oM$	Timespace	$t_{MO}=h/E_{MO}$	5.124×10^{-42}	1.301×10^{8} 8.100×10^{26}	$R_{MO}=2\pi L_{MO}=1.537\times10^{-33}$ $L_{MO}=r_{MO}=2.446\times10^{-34}$
Monopole Boson	string class heterotic HO(32) closed	Timespace	$t_{MO}=2\pi R_{MO}/c$	1.537×10^{-40}	4.337×10^{6} 2.700×10^{25}	$R_{MO}=2\pi L_{MO}=4.611\times10^{-32}$ $L_{MO}=r_{MO}=7.339\times10^{-33}$
XL-Boson	string class IIB closed	Timespace	$t_{XL}=2\pi R_{XL}/c$	2.202×10^{-39}	3.028×10^{5} 1.885×10^{15}	$R_{XL}=2\pi L_{XL}=6.606\times10^{-31}$ $L_{XL}=r_{XL}=1.051\times10^{-31}$
Ecosmic-Boson	string class IIA closed	Timespace	$t_{EC}=2\pi R_{EC}/c$	6.618×10^{-34}	0.833 5.189×10^{9}	$R_{EC}=2\pi L_{EC}=1.985\times10^{-25}$ $L_{EC}=r_{EC}=3.159\times10^{-26}$
False Vacuum Higgs-Boson Upper	Higgs string	Timespace	$G_oM_ot_{ps}/R_Hc^2$	4.672×10^{-33}	0.143 8.885×10^{8}	$R_{Higgs}=2\pi L_{Higgs}=1.402\times10^{-24}$ $L_{Higgs}=r_{Higgs}=2.231\times10^{-25}$
False Vacuum Higgs-Boson Lower	Timespace OPL-Image	Timespace	$\surd\alpha\ t_{ps}$	2.847×10^{-32}	0.0234 1.458×10^{8}	$R_{Higgs}=2\pi L_{Higgs}=8.541\times10^{-24}$ $L_{Higgs}=r_{Higgs}=1.359\times10^{-24}$
Weyl-Boson-QBBS radius	string class heterotic HE(64) closed	QBBS Spacetime	$t_{ps}=r_{ps}/c$	5.305×10^{-32}	0.0126 7.823×10^{7}	$r_{ps}=\lambda_{ps}/2\pi=1.592\times10^{-23}$
Weyl-Boson-QBBS wavelength	Closed string class heterotic HE(64) closed	QBBS Spacetime	$t_{ps}=2\pi r_{ps}/c$	3.333×10^{-31}	2×10^{-3} 1.245×10^{7}	$\lambda_{ps}=10^{-22}$
Weyl-Boson-QBBS modular wavelength	string class heterotic HE(64) closed	QBBS Spacetime	$t_{ps}=2\pi\lambda_{ps}/c$	2.094×10^{-30}	3.184×10^{-4} 1.982×10^{6}	$2\pi\lambda_{ps}=6.283\times10^{-22}$
False Vacuum Higgs- Boson Lower	Spacetime OPL-Image	Spacetime	$t_{ps}/\surd\alpha$	3.902×10^{-30}	1.709×10^{-4} 1.064×10^{6}	$R_{Higgs}=2\pi L_{Higgs}=1.171\times10^{-21}$ $L_{Higgs}=r_{Higgs}=1.864\times10^{-22}$
False Vacuum Higgs- Boson Upper	Higgs string	Spacetime	$R_Hc^2t_{ps}/G_oM_o$	2.378×10^{-29}	2.803×10^{-5} 1.746×10^{5}	$R_{Higgs}=2\pi L_{Higgs}=7.134\times10^{-21}$ $L_{Higgs}=r_{Higgs}=1.135\times10^{-21}$
Ecosmic Boson	Cosmic Ray Image Knee	Spacetime	t_{ps}^2/t_{EC}	1.679×10^{-28}	3.971×10^{-6} 2.472×10^{4}	$R_{EC}=2\pi L_{EC}=5.037\times10^{-20}$ $L_{EC}=r_{EC}=8.017\times10^{-21}$
XL-Boson	Cosmic Ray Image Ankle	Spacetime	t_{ps}^2/t_{XL}	5.046×10^{-23}	1.321×10^{-11} 8.225×10^{-2}	$R_{XL}=2\pi L_{XL}=1.514\times10^{-19}$ $L_{XL}=r_{XL}=2.410\times10^{-20}$
Monopole Boson	Cosmic Ray Image Toe	Spacetime	t_{ps}^2/t_{MO}	7.229×10^{-22}	9.222×10^{-13} 5.742×10^{-3}	$R_{MO}=2\pi L_{MO}=2.169\times10^{-13}$ $L_{MO}=r_{MO}=3.451\times10^{-14}$ Universe the size of the Compton quantum scale $R_{compton}=R_e/\alpha=h/2\pi mc$
Monopole Boson	Minimum 30[ec] for quantum gravity	Spacetime	$t_{MO}=h/E_{MO}$	2.169×10^{-20}	3.074×10^{-14} 1.914×10^{-4}	$R_{MO}=2\pi L_{MO}=6.507\times10^{-12}$ $L_{MO}=r_{MO}=1.036\times10^{-12}$ Universe the size of the wave matter de Broglie quantum scale $\lambda_{dB}=h/mc$
Planck Boson	Planck boson Image	Spacetime	t_{ps}^2/t_{PL}	2.539×10^{-19}	2.626×10^{-15} 1.635×10^{-5}	$R_{PL}=2\pi L_{PL}=7.617\times10^{-11}$ $L_{PL}=r_{PL}=1.212\times10^{-11}$ Universe the size of the Bohr atom scale $\lambda_{bohr1}=R_e/\alpha^2$

Planck-Oscillation Boson	Planck bounce Image	Spacetime	t_{ps}^2/t_{OPL}	2.972×10^{-18}	2.243×10^{-16} 1.396×10^{-6}	$R_{OPL}=2\pi L_{OPL}=8.916\times10^{-10}$ $L_{OPL}=r_{OPL}=1.419\times10^{-10}$ Universe the size of an atom
Algo Boson	Genesis boson Image	Spacetime	t_{ps}^2/t_{Algo}	1.775×10^{-13}	3.756×10^{-21} 2.338×10^{-11}	$R_{ALGO}=2\pi L_{ALGO}=5.32558484\times10^{-5}$ $L_{ALGO}=r_{ALGO}=8.47593\times10^{-6}$ Universe the size of smallest life bio-organisms; cellular complex

This evolution is defined in the wormhole mass $m_{weyl}=\{\lambda_{weyl}c^2/4\pi G_o\}$ transforming into the mass of the mother black hole $M_H=\{R_Hc^2/2G_o\}$ in using the time coordinate for the Sarkar daughter black hole given as the coordinate of the E-googol from the timespace definitions as the mass seedling $M_o=\{R_{sarkar}c^2/2G_o\}$ = (proportionality constant q_o)M_H.
The proportionality constant q_o is known as the deceleration parameter for the QBBS cosmology.
The H-googol defined the Hubble event horizon and so the boundary conditions for the age and size for the protoverse as a seed for the multiverse emerging after one completion of the light path of the EMMR travelling in spacetime from the instanton to the inflaton.

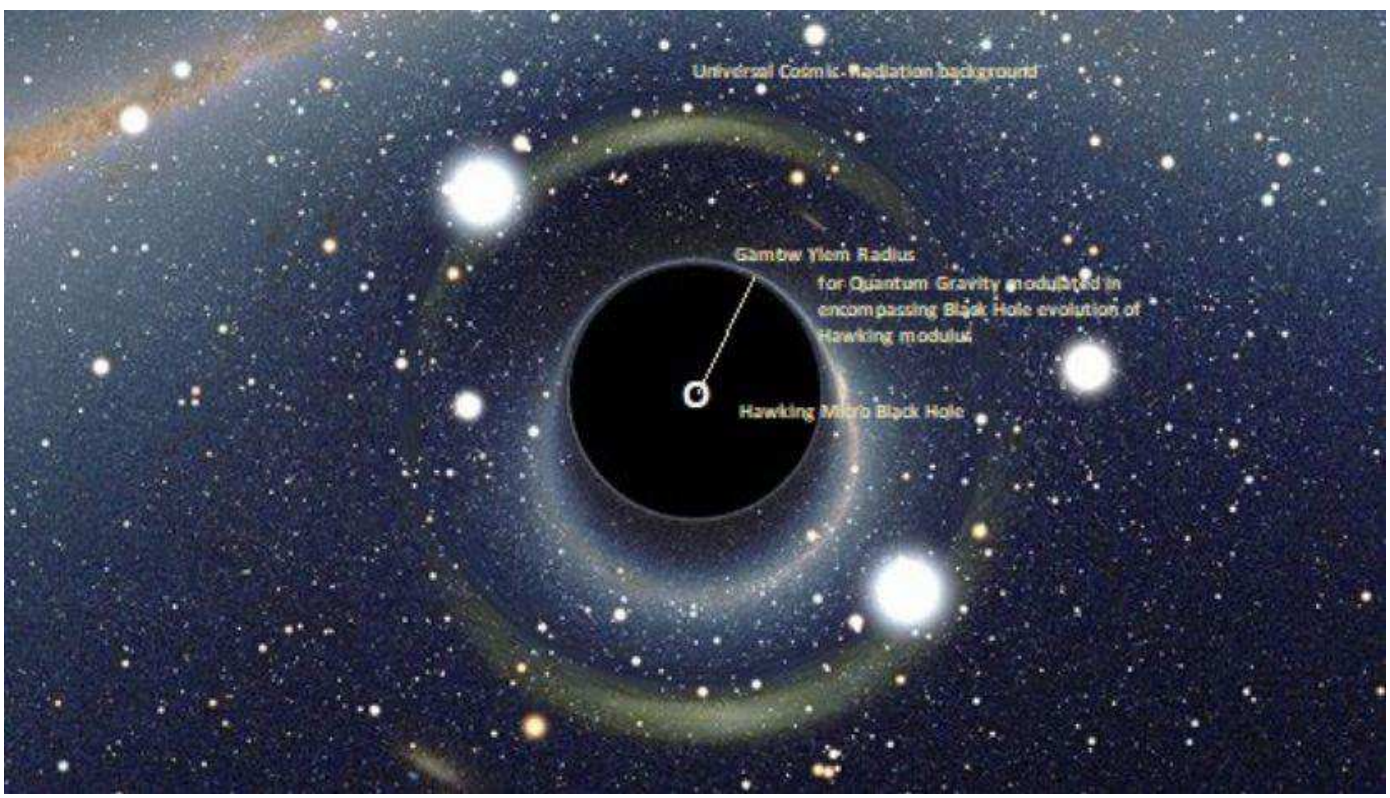
The F-googol and the G-googol as counts of source energy wormhole quanta reduce the encompassing Riemann volumars in a factor of $F/E=1.019538764\times10^{103}/1.006208782\times10^{112}=1.0132477\times10^{-9}$ and $G/E=9.676924497\times10^{102}/1.006208782\times10^{112}=9.61721332\times10^{-10}$ to set a particular energy ratio between the light energy parameters and the dark energy parameters in the QBBS. The light energy parameter refers to the part of Electromagnetic radiation (EMR) emerging from the instanton as the effect of the acceleration electropolar charge coupled to the wormhole mass m_{weyl} and as different from the Electromagnetic monopolar radiation of the EMMR, which is the effect of the acceleration of magnetopolar charge as given in the Dirac monopole manifesting from imaginary timespace as physicalized spacetime.
The dark energy parameter then refers to the part associated with the matter content of the QBBS and so the mass seedling M_o of the instanton defined in spacetime at the E-googol marker and as part of the encompassing dark energy mass of the mother black hole M_H of the Hubble event horizon.

The Riemann volumar $R(n)=R_H\{n\}/\{n+1\}$ at the E-googol marker for the Strominger black hole so is calculated as $2\pi^2R_E^3=\{E\}\{2\pi^2r_{weyl}^3\}$
for $R_E=\sqrt[3]{E}(\lambda_{weyl}/2\pi)=3.43597108\times10^{14}$ m* for a time
$t_E=n_E/H_o=2.1506\times10^{-12}/H_o=1{,}145{,}323.7$ s*
and a temperature $T_E=1.163\times10^9$ K*from $T(n)=\sqrt[4]{\{\{H_o^3M_o/1100\pi^2\sigma_{SB}\}.\{(n+1)^2/n^3\}\}}$
The Riemann volumar at the F-googol marker for the Strominger black hole so is calculated as $2\pi^2R_F^3=\{F\}\{2\pi^2r_{weyl}^3\}$ for
$R_F=\sqrt[3]{F}(\lambda_{weyl}/2\pi)=3.45107750\times10^{11}$ m* for a time $t_F=n_F/H_o=2.1601\times10^{-15}/H_o=1150.36$ s* and a temperature $T_E=2.0614\times10^{11}$ K*.
The Riemann volumar at the G-googol marker for the Strominger black hole so is calculated as $2\pi^2R_G^3=\{G\}\{2\pi^2r_{weyl}^3\}$ for
$R_G=\sqrt[3]{G}(\lambda_{weyl}/2\pi)=3.39155801\times10^{11}$ m* for a time $t_G=n_G/H_o=2.1228\times10^{-15}/H_o=1130.52$ s* and a temperature $T_E=2.0885\times10^{11}$ K*
For F'=(2G-F)=$9.158461354\times10^{102}$ space quanta = $R_{F'}=\sqrt[3]{F'})(\lambda_{weyl}/2\pi)=3.32987275\times10^{11}$ m* for a time $t_{F'}=n_{F'}/H_o=2.0842\times10^{-15}/H_o=1109.96$ s*
and temperature $T_E=2.1173\times10^{11}$ K* and where googol F' is the mirror image of

googol F about googol G

Those Strominger black holes then became physically manifest as the first Gamow ylem protostars, physicalizing the potential matter vortices from the initial potential mass distribution of the M_o matter seedling.
Ylemic neutron stars form the boundary conditions for quark-gluon stars with characteristic radii relating the temperature of the universe at the particular n-cycle coordinate to vortex potential energy concentrations materializing from the matter distribution of the matter seedling M_o as ylemic neutron stars.
The thermodynamic evolution of the universe then relates a general evolution of neutron stars with specific nuclear densities with respect to the cosmic radiation background to the Hawking properties of black holes as a background energy matrix originating from the distribution of a baryonic mass seedling and its coupling to the QBBS parameters.
The Hawking-Gamow Temperature Unification for classical and quantum gravitation is so derived as the temperature ratio:
$T_{Hawking}/T_{ylem} = 1 = hcR_e^3/2\pi G_o m_c^2 R_{ylem}^2 R_{Hawking}$
$= R_e^3/\alpha_{nucleon}.R_{ylem}^2 R_{Hawking}$ with $\alpha_{nucleon} = \alpha_{planck}\alpha_e^{18}$.

Hawking's micro black holes play a decisive role in the universal cosmology, as they modulate the quantum gravitational universe of the creation event with the classical gravitation of the spacetime geometry. In particular the micro black holes form the energy centers within encompassing vortices of potential energy modelled on the Jeans length applied to the general temperature evolution of the universe.



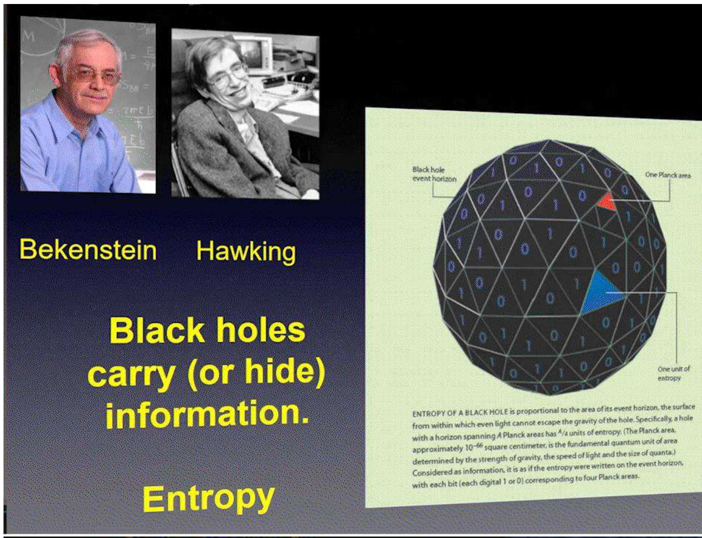
The ylemic radius is independent from mass as a function of the ylemic Gamow temperature, decreases with time and only depends on atomic and subatomic parameters as the classical electron radius R_e and the primordial nucleon as the ylemic neutron $m_c=m_{planck}\alpha^9$ from the gravitational finestructure $\alpha_g=2\pi m_c^2/hc=m_c^2/m_{planck}^2=\alpha_e^{18}$ for k_B the Stefan-Boltzmann constant for thermodynamic energy, R_e the classical electron radius, G_o the quantum gravitational constant and m_c the proto-nucleonic mass from the gravitational finestructure in:

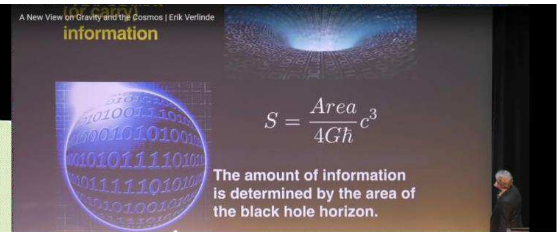
The Gamow Ylemic dineutronic radius for Black Hole Temperature evolution:

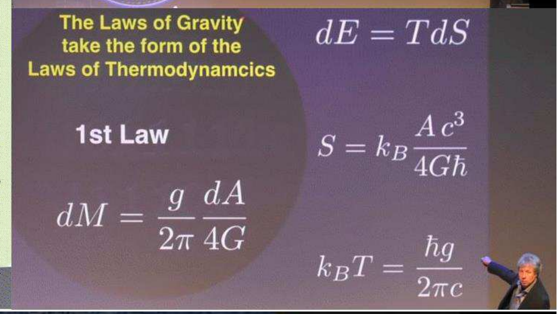
$$R_{ylem} = \sqrt{\{k_B T_{ylem} R_e^3/G_o m_c^2\}} \text{ ....[EQ.4]}$$

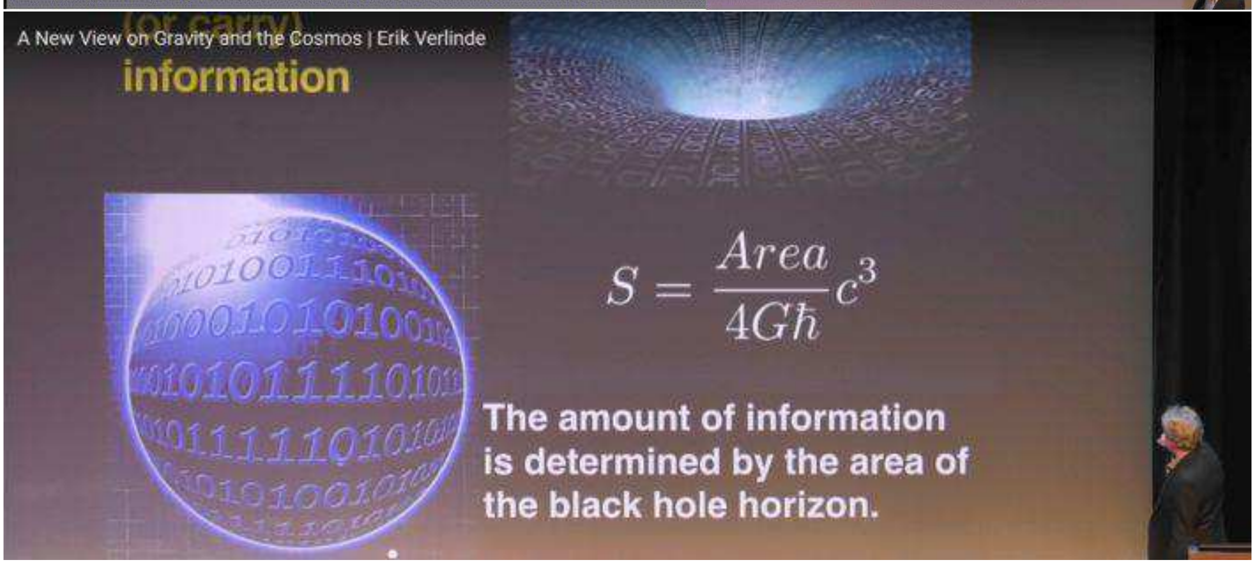
The ylem radius so is descriptive for a spacetime metric coupling the quantum gravitation of a Hawking micro black hole at the high fusion temperatures of the early universe to its later manifestation in neutron stars defined by their nuclear densities with electron and neutron degeneracies.
The maximum temperature for a black hole is given at a nexus point in the thermodynamic evolution of the universe, known as the bosonic unification of the background temperature with that of the bosonic temperature of the Weyl wormhole of the QBBS. The universe had cooled to a temperature of $1.42\text{x}10^{20}$ Kelvin from the QBBS temperature of a temperature of $2.30\text{x}10^{36}$ Kelvin at a time of 2 nanoseconds from the instanton.
At this time, the ylem dark matter radius was $6.26\text{x}10^{8}$ meters encompassing a lower dimensional universe of just 1.1382 meters across in the higher dimensional universe created by the inflaton and the hyper accelerated de Broglie wave matter EMMI light path.

Quantum gravity defined the Hawking micro black hole to have a mass of $M_{Hawking}=r_{ps}c^2/2G_o=6445.77$ kg* as minimum mass a black hole can have for a Hawking maximum temperature of $T_{ps}=1.41671\text{x}10^{20}$ K*.
This is defined as an inverse proportionality between the mass and the temperature of a black hole. The hotter a black hole is, the smaller it must be and the larger a black hole can grow, the cooler it must become. This quantum gravitational Hawking mass of about the weight of a large elephant, compares to the Planck black hole radius
$L_{planck}=2.090\text{x}10^{-35}$ m*$=2G_o m_{planck}/c^2$ for a halved Planck mass $m_{planck}=8.463\text{x}10^{-9}$ kg*, indicating the nature of quantum gravitation as a transformation of the timespace energy scale into the spacetime energy scale.


Bekenstein
Hawking
Black holes
carry (or hide)
information.
Entropy
Black hole
event horizon
One Planck area
One unit of
entropy
ENTROPY OF A BLACK HOLE is proportional to the area of its event horizon, the surface from within which even light cannot escape the gravity of the hole. Specifically, a hole with a horizon spanning A Planck areas has A/4 units of entropy. (The Planck area, approximately 10^{-66} square centimeter, is the fundamental quantum unit of area determined by the strength of gravity, the speed of light and the size of quanta.) Considered as information, it is as if the entropy were written on the event horizon, with each bit (each digital 1 or 0) corresponding to four Planck areas.


A New View on Gravity and the Cosmos | Erik Verlinde
information
$S = \frac{Area}{4G\hbar}c^3$
The amount of information
is determined by the area of
the black hole horizon.


The Laws of Gravity
take the form of the
Laws of Thermodynamcics
$dE = TdS$
1st Law
$S = k_B \frac{A c^3}{4G\hbar}$
$dM = \frac{g}{2\pi}\frac{dA}{4G}$
$k_B T = \frac{\hbar g}{2\pi c}$


A New View on Gravity and the Cosmos | Erik Verlinde
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$S = \frac{Area}{4G\hbar}c^3$
The amount of information
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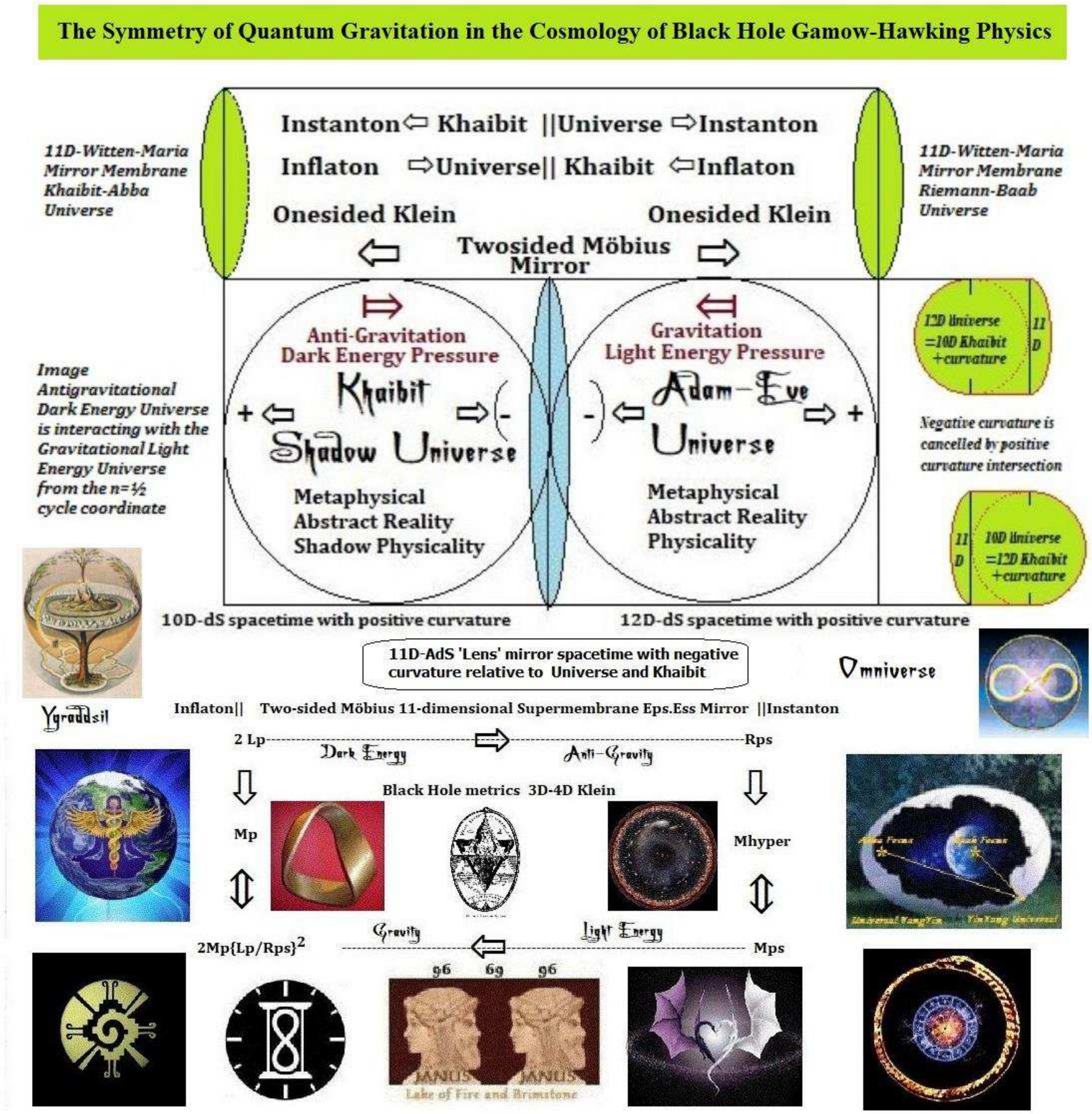


The Schwarzschild metric for $2L_p = 2G_oM_p/c^2$ transforms a 3D Planck-length in the Planck-mass $M_p = \sqrt{hc/2\pi G_o}$ from the Planck-boson gravitational fine structure constant $1 = 2\pi G_oM_p^2/hc$. The Schwarzschild metric for the Weyl-wormhole radius R_{ps} then defines a hypermass M_{hyper} as the conformal mapping of the Planck-mass M_p as

$M_{hyper} = ½\{R_{ps}/L_p\}M_p = ½\{R_{ps}/L_p\}^2.M_{ps}$ and where $M_{ps} = E_{ps}/c^2 = hf_{ps}/c^2 = kT_{ps}/c^2$ in fundamental expressions for the energy of Abba-E_{ps} as one part of the supermembrane $E_{ps}.E_{ss}$ in physical

quantities of mass m, frequency f and temperature T.
c^2 and h and k are fundamental constants of nature obtained from the initializing algorithm of the Mathimatia and are labeled as the 'square of lightspeed c' and 'Planck's constant h' and 'Stefan-Boltzmann's constant k' respectively.

The complementary part of supermembrane $E_{ps}E_{ss}$ is Ess-Baab. Eps-Abba is renamed as 'Energy of the Primary Source-Sink' and Ess-Baab is renamed as 'Energy of the Secondary Sink-Source'.
The primary source-sink and the primary sink-source are coupled under a mode of mirror-inversion duality with Eps describing a vibratory and high energy micro-quantum quantum entanglement with Ess as a winding and low energy macro-quantum energy.
It is this quantum entanglement, which allows Abba to become part of Universe in the encompassing energy quantum of physicalized consciousness, defined in the magnetopolar charge.
The combined effect of the applied Schwarzschild metric then defines a Compton Constant to characterize the conformal transformation as:

Compton Constant $h/2\pi c = M_pL_p = M_{ps}R_{ps}$.

Quantum gravitation now manifests the mass differences between Planck-mass M_p and Weyl-mass M_{ps}.
The Black Hole physics had transformed M_p from the definition of L_p; but this transformation did not generate M_{ps} from R_{ps}, but rather hypermass M_{hyper},
differing from M_{ps} by a factor of $½\{R_{ps}/L_p\}^2$.
To conserve supersymmetry, Logos defined an Anti-Instanton as the Inflaton of Khaibit to define the conformal mapping of M_{ps} from Universe into Khaibit as $2M_p\{L_p/R_{ps}\}^2$.

Hawking Modulus HM = $M_{Hawking}T_{Hawking}=m_{Planck}.E^o_{Planck}/k_B = \surd\{hc/2\pi G_o\}\{½m_{Planck}.c^2/k_B\}$
$= hc^3/4\pi G_ok_B = \{M_{Hminin}.T_{Hmax}\}=\{r_{ps}c^2/2G_o\}\{T_{ps}\}=9.1317939\text{x}10^{23}$ [kgK]*

The maximum Hawking temperature for micro black holes so is given as $T_{ps}=T_{weyl}$ as a maximized bosonic or Einstein-Boson-Condensate temperature for the QBBS.

The Hawking-Unruh form for the Hawking Modulus is HUM=$M_{Hawking}.T_{Hawking}$
$= m_{planck}.T_{planck}/8\pi = hc^3/16\pi^2G_ok_B =7.2668507\text{x}10^{22}$ [kgK]*
for the extent of the Unified Field of Quantum Relativity (UFoQR) requiring 1440° or 8π radians to repeat its superposed electromagnetic-gravitational wavefunction.

The Unruh acceleration within a temperature background so relates to the surface properties of the holographic AdS-CFT (conformal field theory) cosmology and the entropy of a black hole in the Hawking-Bekenstein bound of $S=2\pi k_BAc^3/4G_oh$ in the UFoQR then becomes $a_{unruh}=2\pi cM_{Hawking}k_BT_{Hawking}/h$ and would give a black hole Hawking temperature of $2.46\text{x}10^{-19}$ K* for a gravitational acceleration of 9.8 [m/s^2]*.

The entropy of the Hawking-Bekenstein cosmology therefore relates to the conformal mapping of the Planck displacement scale onto the Weyl-Eps displacement scale in entropy $S=\frac{1}{4}\{Area/L_{planck}^2\}=\frac{1}{4}\{2\pi Ac^3/G_oh\}$.
The Weyl-wormhole of heterotic supermembrane EpsEss and given by the sinusoidal waveform $f_{UFoQR}(x)=\sin(3x/2)-\cos(3x/4)$ so represents the four Planck areas L_{planck}^2 per information bit in its 12 monopolar current loops spanning a wave number of k=4 in $8\pi/\lambda_{ps}$ radians. As the Feigenbaum complexity bound for the universal base topology is $3\pi/2$, and the surface area for the Riemann 3-dimensional manifold is $6\pi^2R_3^2$, the
Hawking-Unruh factor of $4\pi=6\pi^2/(3\pi/2)=12\pi^2/3\pi=$ as a coefficient modulation in the multidimensional universe.

As indicated by cosmological models, including Susskind, Maldacena, Bousso and Verlinde, relating string theory with gravitation and the holographic principle; crystallizes that quantum information from timespace allows gravitation and all interactions to emerge in spacetime. The transition from timespace into spacetime then is enabled by the Dirac string and the mirror modular dualities of string-membrane realm imaging the string parameters from timespace into spacetime. The primary physical parameter for the subsequently evolving cosmology then is the definition of temperature as a kinetic energy effect for the lower dimensional and gravitational universe and with entropy as a count of energy-frequency micro eigenstates as bits of information. The higher dimensional information universe so forms a corollary in the EMMI light path of the monopolar source radiation to the EMI light path for the matter dependent electromagnetic radiation (EMR). As the EMR is produced by the dynamics of electropolar charges, as in the angular acceleration of protons in a fusion star; but the magnetopolar charges are accelerated in the frequency differential over time in df/dt as a radial independent angular quantum spin; the Unruh acceleration can be generalised to the gravitational acceleration $g=GM/R^2$ for the entropic cosmology and bounded in the Schwarzschild metric in partitioning lightspeed c in the product of wavelength times frequency.

For a temperature $T=hg/4\pi^2ck_B=G_oMh/4\pi^2ck_BR^2=hc^3/16\pi^2k_BG_oM$ the square of the Schwarzschild metric results in $4G_o^2M^2=R^2c^4$

In particular, the definitions of the dark matter particle in the RMP and the Dirac monopole as the Weyl-wormhole indicate that for the first 6.662×10^{-29}=light path/c seconds from the QBBS, the physical energy content of the universe was purely restmass photonic in forming the ylemic dineutron bosons as the primordial radiation background for the thermodynamic expansion of the universe. As the volume of the universe at electroweak unification is $2\pi^2R_{EW}^3=\{2.434875\times10^{87}\}\{2\pi^2r_{ps}^3\}$, the physicalised matter content in the universe from baryon seedling M_o consisted of 2.43×10^{87} dark matter particles in the form of bosonic ylemic dineutrons coupled as a doubled or squared matter colour charge template $Y^2C^2M^2$ containing the soon to be born Higgs boson as the scalar Goldstone boson coupled to a spin conserving colour neutral graviphoton of spin +1 coupled to the RMP's negative quantum spin of -1.

The wave quark geometric $Y^2C^2M^2(-1)$ decays into two lefthanded neutrons each of quantum spin -½ to manifest the charge-parity violation of the weak interaction and the suppression of antimatter in the form of the $M^2C^2Y^2$ antimatter template for the Anti-Higgs boson and the Anti-RMP.

The graviphoton coupled to a matter weakon $(W^-)(+1)$ can then couple to a weakly interacting neutron to flip the lefthanded neutron into a righthanded neutron in conjunction with an antimatter weakon $(W^+)(-1)$ coupled to an anti-graviphoton conserving weak interaction parity across the mirror of the

QBBS as the Dirac string with the Khaibit shadow-mirror universe. The neutral current weakon $(Z^o)(\pm1)$ similarly engages anti-neutrino and neutrino interactions from their colour charged $R^2G^2B^2(+½)$ and $B^2G^2R^2(-½)$ templates, their Dirac form of weakonness being massless, but their Majorana form of unified field interaction resulting in the mass induction by the scalar Higgs (anti)neutrino of squared template form $(R^4G^4B^4)(0)$ and $B^4G^4R^4(0)$.

The production of antimatter in the form of pair production in the UfoQR between monopolar current loops for junctions 6-7-8 then became defined at the electroweak unification cycle coordinate in the cosmogenesis.

The Dirac monopole is defined in the units of the gravitational parameter
or $[m^3/s^2]$=[Volume][Angular Acceleration] as:
$e^*=2R_ec^2= 2R_e\{\lambda_{ps}^2\}\{f_{ps}^2\}=1/E_{ps}$ for $2R_e\{\lambda_{ps}^2\}=2R_e\{360R_e/10^{10}\}^2$
$=\{2.592x10^{-15}\}R_e^3=e^*/f_{ps}^2=e^*f_{ss}^2=e^*(9x10^{60})$ entropy self-states
The RMP is defined in its volumar $2\pi^2R_{RMP}^3=e^*/f_{ps}^2= e^*/(9x10^{60})$ entropy self-states) to define the ratio $\{R_e/R_{RMP}\}=\sqrt[3]{\{2\pi^2/2.592x10^{-15}\}}=7.6154355x10^{15}$ showing that so 7.615 quadrillion RMPs will fit into the source energy quantum and the inversion charge energy of the Dirac monopole and so the QBBS instanton.

The radius of the RMP is given $R_{RMP}=1.411884763x10^{-20}$ m* from the source energy quantum definition for the classical electron radius of $2.777…x10^{-15}$ m*. The unification condition for the physicalisation of the Dirac monopole as the t'Hooft-Polyakov monopole requires however the Mean Monopolar Quantum Bound (MQB) as the alignment of the Dirac monopole wavelength mapped onto the electron wavelength and this MQB is calculated from the quantization condition to align the Dirac wavelength with the mirror modular duality of the supermembrane EpsEss.
As the inversion properties apply throughout the cosmology defined by the googolplex markers EFGF', the Dirac wavelength aligns the divergence between the product R_ER_e in the coupling of λ^* to R_E and r* to R_e
in the ratio = $\eta_{MO}=(MQB/R_ER_e)=(1.351/0.9544)=1.41555$ and in multiplying the RMP radius by (MQB/R_ER_e) for an effective dark matter displacement coordinate
$R_{RMPeff}=1.9986x10^{-20}$ m*.
.

$\lambda^*=4.087933536x10^{14}$ Monopolar mean classical bound	$2\pi r^*\lambda^*$ MQB=1.351	$2\pi r^*=3.30485x10^{-15}$ Monopolar mean quantum bound
$R_E^*=3.6x10^{14} = 360x10^{12}$	$R_E^*R_e^*=1$	$R_e^*=R_e=10^{10}\lambda_{ps}/360$
$R_E=\sqrt[3]{E(\lambda_{weyl}/2\pi)}=3.43597108x10^{14}$	$R_ER_e=0.9544$	$R_e=2.7777x10^{-15}$

The RMP dominated era ended when the ylemic dineutron radius became equal to the size of the universe at a time about 1/140th of a second for a radius of $2.14114x10^6$ m*. This was the nexus for the RMP-Higgs ylemic quarkian geometry template to differentiate between the mesonic inner and the leptonic outer ring to kernel the proton in electroweak unification at a temperature of $1.68x10^{15}$ K* and when the dark matter universe became illuminated in the EMMI light path intersecting the RMP haloed universe.

The number of space quanta comprising the universe at RMP time is the size of the universe for cycle coordinate divided by $2\pi^2 r_{ps}^3$
as a space quanta count $Eta_{RMP} = \eta_{RMP} = R_{RMPeff}^3/r_{ps}^3 = 1.9802\text{x}10^9 = 1/5.0500\text{x}10^{-10}$

For the googolplex E-FGF', the photon baryon ratios for the time of the primordial neutron decay from to 1150.36 – 1130.52 – 1109.96 – 229.821 seconds for a time interval from 880.14 to 900.70 to 920.54 seconds, the respective photon-baryon ratios then replace the ratio of the dark matter restmass photons in the illuminated universe now enabled to freely produce protons, electrons with anti-neutrinos in beta minus weak interaction decay and completing the first 20 minutes of the thermodynamic evolution of the universe in the formation of primordial helium, deuterium, tritium and lithium in the nucleosynthesis of the QBBS.

$\eta_{MO} \{R_E/R_F\}^3 = \{1.41555\}\{1.006208782\text{x}10^{112}/1.019538764\text{x}10^{103}\}$
$= \{1.41555\}\{9.8692548\text{x}10^8\} = 1.397042\text{x}10^9 = 1/7.15799\text{x}10^{-10}$
$\eta_{MO} \{R_E/R_G\}^3 = \{1.41555\}\{1.006208782\text{x}10^{112}/9.676924497\text{x}10^{102}\}$
$= \{1.41555\}\{1.03980225\text{x}10^9\} = 1.471892\text{x}10^9 = 1/6.79398\text{x}10^{-10}$
$\eta_{MO} \{R_E/R_{F'}\}^3 = \{1.41555\}\{1.006208782\text{x}10^{112}/9.158461354\text{x}10^{102}\}$
$= \{1.41555\}\{1.09866575\text{x}10^9\} = 1.555216\text{x}10^9 = 1/6.42998\text{x}10^{-10}$

The Unified Gauge Parameter Field of Quantum Relativity

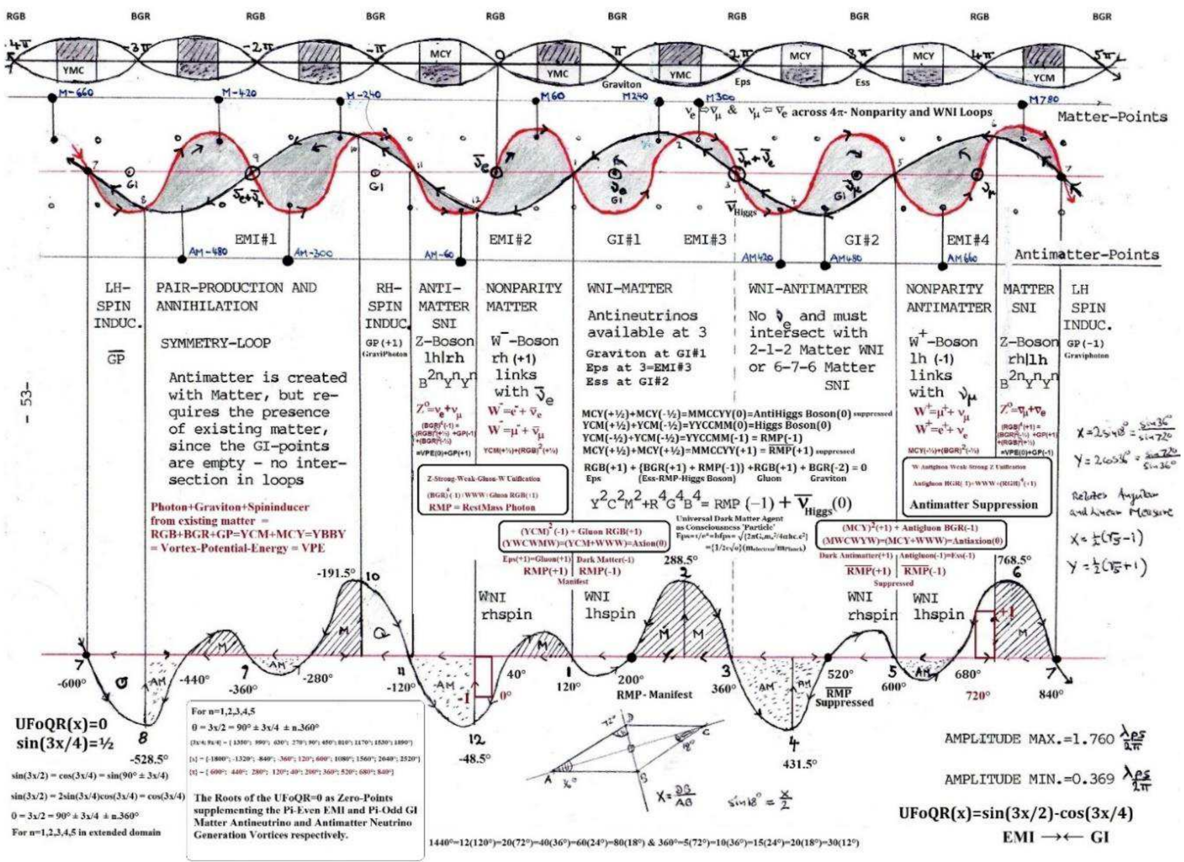
Primary-Secondary-Tertiary Colour Triplets of the Chromaticity Unities in the UFoQR 1-2-3-4-5-6-7-8-9-10-11-12-13
Anticolours for 8 Gluon Permutations in Energy gravitational $E=mc^2$ for B(lack) and Energy radiative E=hf for W(hite)

R+C and O+A and Y+B and L+I and G+M and T+P and C+R and A+O and B+Y and I+L and M+G and P+T and R+C

Gluon RGB=(RG)B=YB=CR=MG=YB=CR=MG=RGB
for: {BBB;BBW;BWB;BWW;WBB;WBW;WWB;WWW} hyperonic triplets and {BB;BW;WB;WW} mesonic doublets

R(ed)-O(range)-Y(ellow)-L(ime)-G(reen)-T(urquoise)-C(yan)-A(quamarine)-B(lue)-I(ndigo)-M(agenta)-P(urple)-R(ed)

The 12 Junction-Loops of the Unified Field Natural Current Field in Quantum Relativity Extent: $4\lambda_{ps}$ & Amplitude=$\lambda_{ps}/2\pi$



EM(M)I=ElectroMagnetic (Monopolic) Radiation Interaction = Unified Field of QR before spacetime creation
{Inflation to Quantum Big Bang} without Gravitational Interaction GI
Metaphysical Abstraction of Mathimatia Supersymmetry by Logos Definition in Radiation-Antiradiation Symmetry

Möbian-Klein Twosided 11D-Mirror SelfIntersection :	0° RGB(+1)+RGB(-1) ⇒ RRGGBB(0) ⇒ YCM(0)+YCM(0) ⇒ 180° BBGGRR(0)⇒MCY(0)+MCY(0) ⇒ 360°=0° BGR(-1)+BGR(+1)

Eps=RGB(+1) at 0°--------------------Ess=RGB(-1) at 360°.............Eps=BGR(-1) at 180° Inflexion Ess=BGR(+1)
Ess=RGB(+1) at 0°--------------------Eps=RGB(+1) at 360°...........Breaking of the metaphysical supersymmetry in quantum spin to allow the birth of the Graviton and matter-antimatter symmetry, suppressing however the matter-antimatter symmetry in the reformulation of antiradiation
[Encoded as the retracing of the 'steps of the creator' --Ezekiel.28.13-19; Isaiah.14.12-14]

Unified Field of QR in the 11D-Membrane Inflation, followed by a Quantum Big Bang of Relativistic Thermodynamic Cosmology
Physicalisation of the Metaphysical Precursor in an inherent Matter-Antimatter Asymmetry

Möbian-Klein Onesided 10D/12D-Mirror SelfIntersection as the Goldstone Boson Unification of all Interactions in the UFOQR:

RGB(+1)+BGR(+1)+RGB(+1)+BGR(-2)+YYCCMM(-1) = EMI Eps-Photon + WNI Ess-Antiphoton + SNI Gluon + Graviton + EMMR-RMP
⇒ MGGM(+2)+MGGM(-1)+YYCCMM(-1) = VPE(+2)+VPE(-1)+YYCCMM(-1) = VPE(+1)+YYCCMM(-1) = EMMR UFOQR Unification

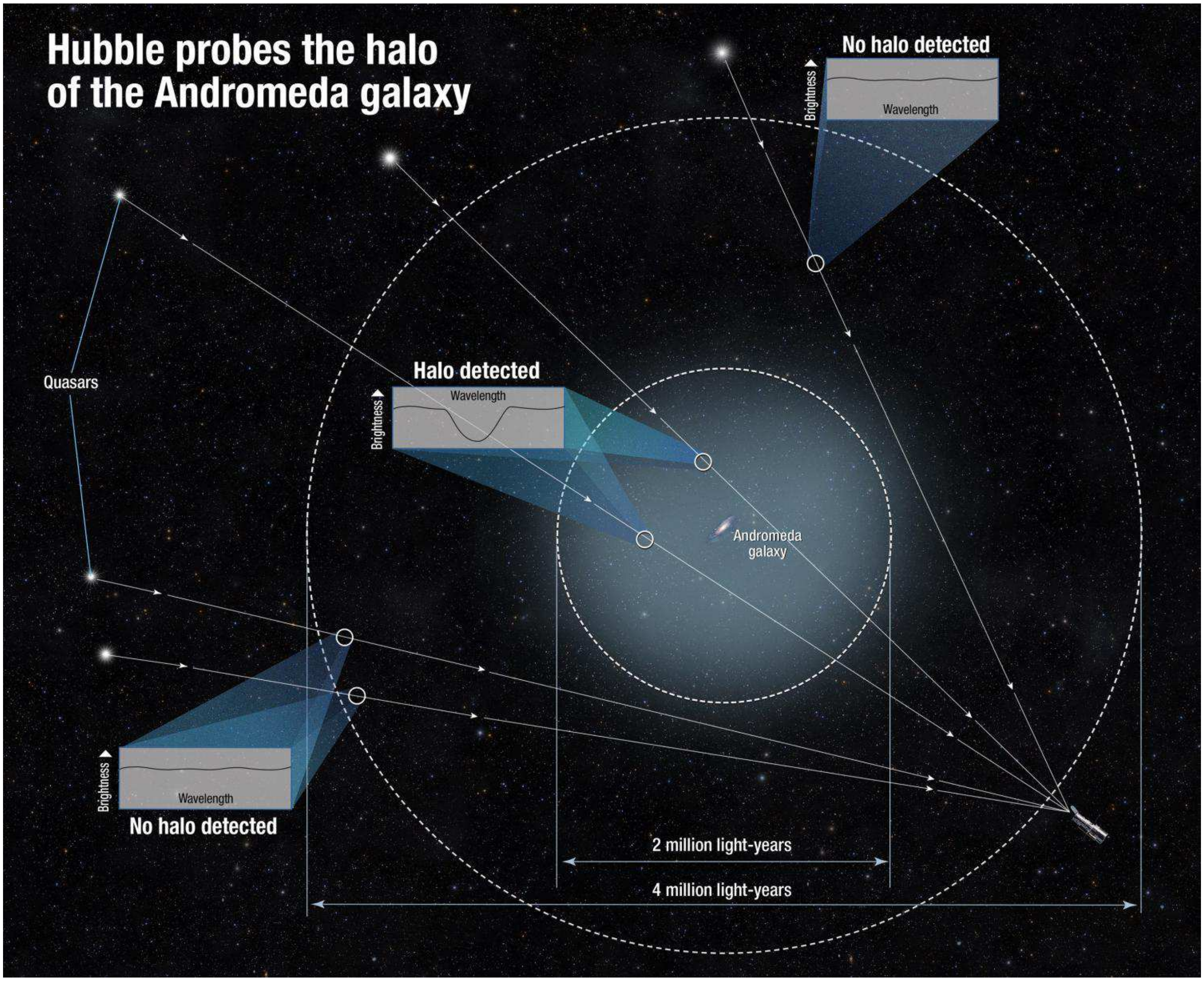
The Ess-Anti-Photon(+1) is suppressed as Goldstone ambassador gauge in spin +1 by The SNI ambassador Gluon and is suppressed in colour charge BGR by the GI gauge ambassador Graviton. The birth of the Graviton demands a net spin of +1 of the Vortex-Potential Energy or VPE/ZPE to become neutralized by the fifth gauge ambassador of the RMP with spin -1 as the gauge ambassador and Goldstone Boson as the primal gauge ambassador for the consciousness energy interaction encompassing all particular constituents in the Unified Field of Quantum Relativity.

Council of Thuban, Saturday, August 15th, 2015

As the displacement string modular dualities define the minimum-maximum winding mode-frequency mode boundary conditions in
string displacement/time $r_{ps}/t_{ps} = \lambda_{ps}f_{ps}/2\pi = c/2\pi$ modular dual to $r_{ss}/t_{ss}=2\pi\lambda_{ss}f_{ss}=2\pi/c$ the minimum Hawking temperature is modulated in
$\{r_{ps}t_{ss}/r_{ss}t_{ps}\}=\{c^2/4\pi^2\}$ as $T_{Hmin} = \{c^2/4\pi^2\}T_{ss} = \{c^2/4\pi^2\}E_{ss}/k_B =\{hf_{ss}c^2/4k_B\pi^2\}$
$=3.58856785\text{x}10^{-26}$ K* = $T_{ss}\{c^2/4\pi^2\}_{mod}$ and where $\{c^2/4\pi^2\}_{mod}$ is dimensionless due to the string modular duality.

This minimum Hawking temperature for black hole modulation now defines the modular black hole mass dual to the micro black hole of the QBBS as
$M_{Hawkingmax}=M_{Hmax}=\{M_{Hminin}.T_{Hmax}\}/\{T_{Hmin}\} = \{hc^3/4\pi k_BG_o\}/\{hf_{ss}c^2/4k_B\pi^2\} = \{\pi cf_{ps}/G_o\}_{mod}$
$= 2.544690\text{x}10^{49}$ kg*

This maximum Hawking mass so refers to the cycle time coordinate in the evolution of the thermodynamic universe, when the bosonic unification Hawking micro black hole mass with its dark matter ylemic halo will be balanced in a Hawking macro black hole mass descriptive in the encompassing temperature evolution of the universe.
As the micro black hole has the wormhole radius $r_{ps}=\lambda_{ps}/2\pi$ of the QBBS at the bosonic unification time 2 nanoseconds into the expansion of the universe; the macro black hole will have the modular dual radius to the wormhole radius as $r_{ss}=2\pi\lambda_{ss}$ or $6.283\text{x}10^{22}$ m* at a time characterizing the dark matter halo of the micro quantum state to reverse in a modulation of rendering the dark matter halo visible and illuminated.
The cycle time n=0.000393425… or 6.64 million years from the QBBS so manifests an anti-wormhole or white hole perimeter for the supermembrane sourcesink E_{ps} mirroring the supermembrane sinksource E_{ss} as the micro black hole perimeter of the bosonic temperature unification. Monopolar sourcesink E_{ps} so begins to activate in the cosmology in applying the dark matter haloes from a global universal perspective onto a galactic local disposition and preparing the universe for the birth of stars and galaxies, based on the displacement scale of the modulated Hawking macro quantum black hole.
The temperature for this nexus coordinate was 358.05 K* and with a cosmological comoving redshift of z=49.421.
A universal radius of $6.283\text{x}10^{22}$ m* calculates for the Strominger form of the universe as a black hole as $M_{Hmax}=2\pi\lambda_{ss}c^2/2G_o=2.5447\text{x}10^{49}$ kg*



The critical displacement scale for the dark matter haloes from $\{\lambda_{ss}/2\pi - \lambda_{ss} - 2\pi\lambda_{ss}\}$ or $\{0.159\text{-}1.00\text{-}6.28\}\text{x}10^{22}$ m* is conformally mapped onto the galactic seeds encompassed by supercluster seeds of the Sarkar scale defined in the baryon mass seed $R_{sarkar}=G_oM_o/c^2$ from $\{1.12\text{-}2.23\text{-}4.47\}\text{x}10^{24}$ m* with the Hawking modulus applied to the Strominger black hole universal evolution.

The supermembrane modulation factor $\{c^2/4\pi^2\}_{mod}=\{c^2/39.478\}$ so defines a generalized displacement scale for a galactic seed with its core and bulge separated from its inner and outer haloes in $2\pi^2$ as the volumar coefficient for a space quantum ($V_{sq}=2\pi^2 r_{ps}^3$) in $2\pi^2\sim 2\text{x}10^6/10^5=20=4\text{x}10^6/2\text{x}10^5$ and for $\lambda_{ps}f_{ps}=c=1/\lambda_{ss}f_{ss}$.

The ylem radius at the bosonic unification temperature was 6.2584×10^8m* and it was 2.1411×10^6 m* for the electroweak unification when the ylemic radius matched the size of the expanding universe.
The intersection of the ylemic radius in the inflaton universe with the instanton universe so was $(6.2584\times10^8-2.1411\times10^6)$m* = 6.1370×10^8 m* and representing 2.04 light seconds and a volume of $2\pi^2(2.04H_oR_H)^3=2\pi^2(2.04c)^3= 4.5246\times10^{27}$ [m^3]* or 5.686×10^{94} dark matter space quanta from the higher dimensional universe, the lower dimensional universe was expanding into.

From the electroweak unification nexus at 1/140th of a second into the cosmogenesis; the dark matter haloes became fully integrated into the lower dimensional universe with the ylemic radius continually shrinking relative to the expanding Hubble universe aiming for the Hubble event horizon set by the inflaton of the QBBS. At the present cycle time coordinate for the universe, the ylemic radius is 87.15 mm* for a Hawking-ylem-universal temperature of 7.474 K* and a lower dimensional radius of 8.96 billion light years within a higher dimensional radius of 16.88 billion light years of the EMI light path within 19.12 billion light years of the EMMI light path. The gravitationally closed universe in de Sitter spacetime so is at the 53.11% (n/n+1) marker relative to its closure mass in de Sitter spacetime but is at the 86.73% (n) marker relative to its open anti de Sitter spacetime. As 86.73% of the closure mass represent $0.8673R_H$=14.64 billion light years; the true EMMI age of the universe is underestimated in the intersection of the EMMI light path relative to the de Sitter spacetime observer in 13.27% of the true age as 16.88+2.24=19.12 billion years.

Relating the ylem temperature of the Gamow radius of the Schwarzschilded protostar vortex to the Hawking temperature of black holes forms the relationship between the ylemic radius of the Gamow protostar and the Hawking black hole.

$M_{Hawking}=HM/T_{Hawking}=(hc^3/4\pi G_ok_B)/T_{Hawking} = R_{Hawking}c^2/2G_o$ for $R_{Hawking} = hc/2\pi k_BT_{Hawking}$ as the curvature Schwarzschild radius for a Hawking black hole

$T_{Hawking} = hc/2\pi k_BR_{Hawking}$ for $T_{ylem} = G_om_c^2.R_{ylem}^2/k_BR_e^3$

with $T_{Hawking}/T_{ylem} = hcR_e^3/2\pi G_om_c^2R_{ylem}^2 R_{Hawking} = R_e^3/\alpha_{nucleon}.R_{ylem}^2R_{Hawking}$

for the gravitational finestructure constant $\alpha_{nucleon}$ for nucleons with
$m_{planck}\alpha_e^9=\sqrt{(hc/2\pi G_o)(2\pi k_ee^2/hc)}\alpha_e^{[17/2]} = \{e/G_o\}\alpha_e^{[17/2]} = k_ee\alpha_e^{[17/2]} = m_c$

for the Planck mass $m_{planck}^2=hc/2\pi G_o$ and the gravitational fine structure
α^{18}=Stoney-Planck unification $G_o=1/k_e=4\pi\varepsilon_o$ and the general unitary unification of
Dirac's monopole in the identity of the gravitational parameter GM equal to magneto charge e* in
$[e^*/G_o]=[m^3/s^2]/[Nm^2/kg^2]=[kg]=[M]$

Electromagnetic Fine structure:
$\alpha_e = 2\pi k_ee^2/hc = e^2/2\varepsilon_ohc = \mu_oe^2c/2h = 60\pi e^2/h$ ....(Planck-Stoney-QR units *)

Gravitational Fine structure (Electron):
$\alpha_g = 2\pi G_om_{electron}^2/hc = \{\alpha_g/\alpha_{planck}\} = \{m_{electron}/m_{planck}\}^2$

Gravitational Fine structure (Primordial Nucleon): $\alpha_{nucleon} = 2\pi G_om_c^2/hc$ for
$m_c = m_{planck}.\alpha_e^9$

Gravitational Fine structure (Planck Boson): $\alpha_{planck} = 2\pi G_o m_{planck}^2/hc$
Gravitational Fine structure unification: $\{\alpha_g/\alpha_{planck}\} = \{m_{electron}/m_{planck}\}^2$
$= \{m_{electron}/m_c\}^2\alpha_e^{18}$

The Hawking-Gamow Temperature Unification for classical and quantum gravitation in Hawking Micro Black Holes:

$T_{Hawking}/T_{ylem} = hcR_e^3/2\pi G_o m_c^2 R_{ylem}^2 R_{Hawking} = R_e^3/\alpha_{nucleon}.R_{ylem}^2 R_{Hawking}$ with $\alpha_{nucleon} = \alpha_{planck}\alpha_e^{18}$ ……………………………………………….[EQ.5]

For Hawking Micro Black Holes $T_{Hawking}=T_{ylem}$:
$R_{Hawking} = hc/2\pi k_B T_{Hawking} = 2G_o M_{Hawking}/c^2$

The ylem temperature is therefore the Hawking temperature for black holes and also the temperature of the universe as the Cosmic Background Radiation or CBR, presently in the microwave region of the electromagnetic spectrum.

For any time in the cosmic evolution, an ylemic radius and temperature is defined as a background spacetime matrix guiding the universal evolution of the Quantum Big Bang Singularity from the instanton to the inflaton for both the higher dimensional light path of the EMMI and the lower dimensional cosmology of the Planck-Einstein Black Body radiator's thermodynamic evolution.

The original mass seedling $M_o=2q_oM_H=\Omega_oM_H= 2\Lambda_oM_H/A_{dB}$ is distributed as primordial Hawking Black Holes potentials as function of the Hawking modulus $HM=M_{Hawking}T_{Hawking}=hc^3/4\pi k_BG_o$ beginning at a time coordinate defining the Bosonic Temperature Unification (BTU) at a temperature defined by the Weyl-Eps boson string $T_{ps}=E_{ps}/k_B=2.222\text{x}10^{20}$ K*. The time coordinate for this event calculates as about 2 nanoseconds from the QBBS, the instanton and the inflaton. Prior to the BTU, the universe expanded as a Boson-Einstein-Condensate of nucleonic quark-lepton-gluon plasma with the background temperature of the universe exceeding the temperature of the BTU.

The Hawking mass-temperature relation for this black hole evolution then begins to manifest the mass seedling M_o in seedling vortices, destined to evolve into the seeds for ylemic protostars, then growing in size to the scale of dark matter galaxies from which individual stars would form from the previously 'Schwarzschilded' ylemic protostars. The time for the transformation of the ylemic seedling stars, would be the time in the evolution of the universe, when the general scale of the universe would equal the curvature radius defined in the baryonic mass seedling M_o as the gravitational bounding limit of galactic superclusters $R_{sarkar}=2G_oM_o/c^2$ ranging from 1.12 to 2.24 to $4.48\text{x}10^{24}$ m* as the Sarkar radius for a black hole and its diameter and as half its radius for the black hole gravitational potential energy calibration from Einstein quintessence as the cosmological constant as ratio to the de Broglie phase inflaton hyper-acceleration A_{dB} in $\Lambda_o/A_{dB}=G_oM_o/R(n_{ps})^2/A_{dB}=\{G_oM_o/\lambda_{ps}^2\}/\{R_Hf_{ps}^2\}=\{G_oM_o/R_Hc^2\}=M_{sarkar}/2M_H=M_o/2M_H$. These three supercluster scales relate to 118 to 237 to 473 million light years respectively and show the birth of the first stars and galaxies in this time period.

But $\Lambda_o/A_{dB} = M_o/2M_H = M_{sarkar}/2M_H = q_o = 2\Omega_o$ for deceleration parameter q_o=0.014015 for the baryon seedling $\Omega_o=2q_o$=0.028030 for $M_H=R_Hc^2/2G_o$.
The baryonic mass seed so represents 2.8% of the closure mass M_H of the QBBS and increases as a function of the gravitational parameter $G(n)M(n)$=constant=G_oM_o.
It has reached the value of 4.85% for a present n-cycle time coordinate of $n_{present}$=1.132711, showing that the dark matter proportion will be 27.43% of the total and as 85% of the matter content and the dark energy as the Einstein quintessence closing the universe in 67.73% for the present time.

The baryonic matter component evolves according to $\Omega_{BM}=\Omega_o Y^n = 0.02803\{1.618034\}^{1.132711} = 0.0483$ until saturation coordinate for the baryonic matter BM intersecting dark matter DM
for n=√2 for $\Omega_{BM}=\Omega_o Y^n = 0.02803\{1.618034\}^{\surd 2} = 0.055357$=constant for the cosmic matter evolution from 23.866 Gy.
The dark matter $\Omega_{DM} = 1-\Omega_{BM}$ until onset of the dark energy component DE at n=½, from which Ω_{DM} is calculated by $\Omega_{DM}=\Omega_{BM}\{[1+1/n]^3 - 1\}$ and as 0.27434 for the present time.

$\rho_{BM+DM}/\rho_{critical} = 2\pi^2 M_o Y^n R_H^3/2\pi^2 R(n)^3 M_H = \Omega_o Y^n\{V_{AdS}/V_{dS}\} = \Omega_o Y^n\{[n+1]/n\}^3$
$= \Omega_o Y^n\{1+1/n\}^3$ from n=½
for $\rho_{DM}/\rho_{critical} = \Omega_o Y^n\{(1+1/n)^3 - 1\}$

The Dark Energy Fraction $\Omega_{DE} = 1 - \Omega_{DM} - \Omega_{BM} = 1 - \Omega_{BM}[1+1/n]^3$ and
$\Omega_{DE} = 1 - \Omega_{DM} - \Omega_{BM} = 1 - \Omega_{BM}[1+1/n]^3 = 1 - \Omega_o Y^{npresent}\{1+1/n_{present}\}^3 = 1 - 0.32269$
$= 0.67731$ for the present time.

A Revision of the Friedmann Cosmology, Emergent Gravity and Dark Energy as entangled Quantum Information

It is well known, that the Radius of Curvature in the Field Equations of General Relativity relates to the Energy-Mass Tensor in the form of the critical density $\rho_{critical} = 3H_o^2/8\pi G$ and the Hubble Constant H_o as the square of frequency or alternatively as the time differential of frequency df/dt as a cosmically applicable angular acceleration independent on the radial displacement.
The scientific nomenclature (language) then describes this curved space in differential equations relating the positions of the 'points' in both space and time in a 4-dimensional description called Riemann Tensor Space or similar.
This then leads mathematically, to the formulation of General Relativity in Einstein's field Equations:

$$R_{\mu\nu} - \frac{1}{2}g_{\mu\nu}\,R + g_{\mu\nu}\Lambda = \frac{8\pi G}{c^4}T_{\mu\nu}$$

for the Einstein-Riemann tensor

$$G_{\mu\nu} = R_{\mu\nu} - \frac{1}{2}Rg_{\mu\nu},$$

and is built upon ten so-called nonlinear coupled hyperbolic-elliptic partial differential equations, which are mathematically rather complex and often cannot be solved analytically without simplifying the geometries of the parametric constituents (say objects interacting in so called tensor-fields of stress-energy $\{T_{\mu\nu}\}$ and curvatures in the Riemann-Einstein tensor $\{G_{\mu\nu}\}$, either changing the volume in reduction of the Ricci tensor $\{R_{ij}\}$ with scalar curvature R as $\{Rg_{\mu\nu}\}$ for the metric tensor $\{g_{\mu\nu}\}$ or keeping the volume of considered space invariant to volume change in a Tidal Weyl tensor $\{R_{\mu\nu}\}$).

The Einstein-Riemann tensor then relates Curvature Radius R to the Energy-Mass tensor $E=Mc^2$ via the critical density as $8\pi G/c^4=3H_o^2V_{critical}M_{critical}.c^2/M_{critical}.c^4$ $= 3H_o^2V_{critical}/c^2 = 3V_{critical}/R^2$ as Curvature Radius R by the Hubble Law applicable say to a nodal Hubble Constant $H_o = c/R_{Hubble}$

The cosmological field equations then can be expressed as the square of the nodal Hubble Constant and inclusive of a 'dark energy' terms often identified with the Cosmological Constant of Albert Einstein, here denoted $\Lambda_{Einstein}$.

Substituting the Einstein Lambda with the time differential for the square of nodal Hubble frequency as the angular acceleration acting on a quantized volume of space however; naturally and universally replaces the enigma of the 'dark energy' with a space inherent angular acceleration component, which can be identified as the 'universal consciousness quantum' directly from the standard cosmology itself. The field equations so can be generalised in a parametrization of the Hubble Constant assuming a cyclic form, oscillating between a minimum and maximum value given by $H_o=dn/dt$ for cycle time $n=H_ot$ and where then time t is the 4-vector time-space of Minkowski light-path x=ct.

The Einstein Lambda then becomes then the energy-acceleration difference between the baryonic mass content of the universe and an inherent mass energy related to the initial condition of the oscillation parameters for the nodal Hubble Constant.

$\Lambda_{Einstein} = G_oM_o/R(n)^2 - 2cH_o/(n+1)^3$ = Cosmological Acceleration - Intrinsic Universal Milgröm Deceleration as: $g_{\mu\nu}\Lambda = 8\pi G/c^4\, T_{\mu\nu} - G_{\mu\nu}$

then becomes $G_{\mu\nu} + g_{\mu\nu}\Lambda = 8\pi G/c^4\, T_{\mu\nu}$ and restated in a mass independent form for an encompassment of the curvature fine structures.

Dark Energy Initiation for n=½ with $q_{dS}=0$ and $q_{AdS}=1$

"The idea of an antigravity force has had a bad rep ever since," says Kirshner. "People sort of sniggered when it was mentioned, usually because it meant they couldn't explain their results." So when Riess, having checked his figures, suggested this might be the reason he kept showing negative mass, Kirshner, in quiet desperation, emailed the whole team, saying,

"In your heart of hearts, you know this can't be right! We have got to find out where the error is."

"In your heart you know this is wrong." Really, it just seemed like a terrible result, a horrifying thing

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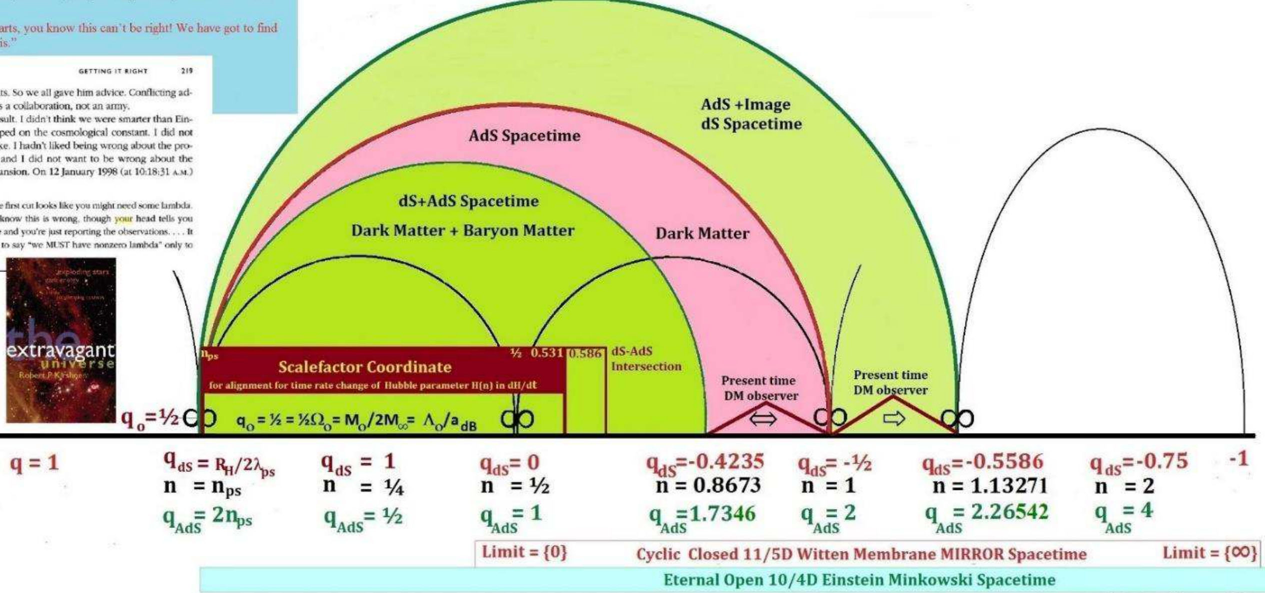
the writing assignments. So we all gave him advice. Conflicting advice. After all, this was a collaboration, not an army.

I didn't like the result. I didn't think we were smarter than Einstein and he had tripped on the cosmological constant. I did not want to make a mistake. I hadn't liked being wrong about the progenitor of SN 1987A and I did not want to be wrong about the history of cosmic expansion. On 12 January 1998 (at 10:18:31 A.M.) I wrote,

> I am worried that the first cut looks like you might need some lambda. In your heart, you know this is wrong, though your head tells you [that] you don't care and you're just reporting the observations. . . . It would be very silly to say "we MUST have nonzero lambda" only to retract it next year.



$$q_{dS} = 1/2n - 1$$

$$q_{AdS} = 2n$$

$$q_{dS} \cdot q_{AdS} = 2n(1/2n - 1) = 1 - 2n$$

$$\frac{q_{dS} + q_{AdS}}{q_{dS} - q_{AdS}} = \frac{1 - 2n + 4n^2}{1 - 2n - 4n^2} = \frac{4\{n-¼(1+i\sqrt{3})\}.\{n-¼(1-i\sqrt{3})\}}{-4\{n-¼(1-\sqrt{5})\}.\{n-¼(1+\sqrt{5})\}}$$

Roots for T(n)=-1 in n(n+1)-1=0
$n = -¼(1+i\sqrt{3})$; $n = -¼(1-i\sqrt{3})$

Roots for T(n)=1 in n(n+1)+1=0
$n = ¼(\sqrt{5}-1) = ½X$; $n = -¼(\sqrt{5}+1) = -½Y$

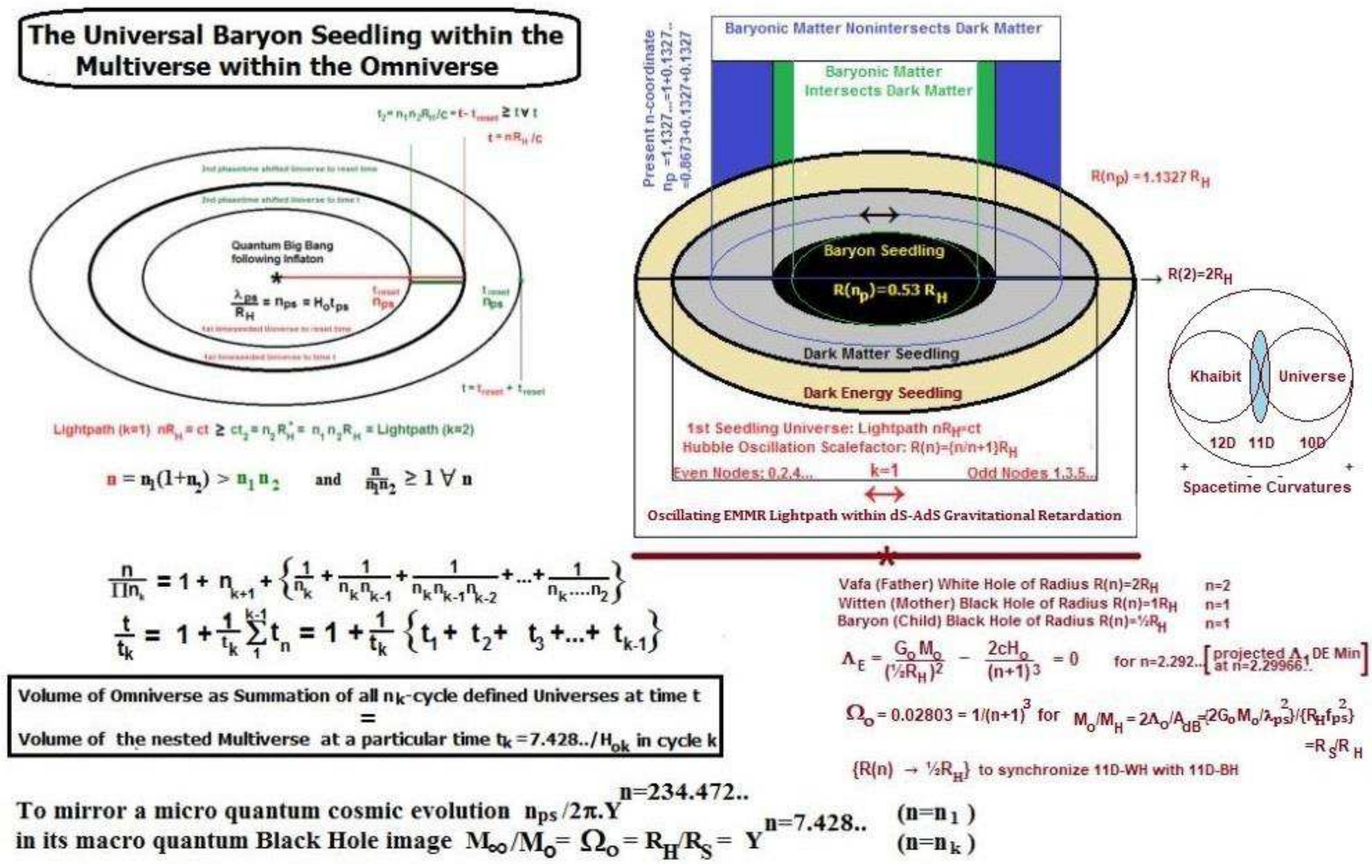
The cosmological observer is situated simultaneously in 10/4D Minkowski Flat dS spacetime, presently at the n=0.8676 cycle coordinate and in 11/5D Mirror closed AdS spacetime, presently at the n=1.1327 coordinate.

Observing the universe from AdS will necessarily result in measuring an accelerating universe; which is however in continuous decelaration in the gravitationally compressed dS spacetime for deceleration parameter q_{AdS}=2n. Gravitation is made manifest in the dS spacetime by Graviton strings from AdS spacetime as Dirichlet branes at the 10D boundary of the expanding universe mirroring the 11D boundary of the nodally fixed Event Horizon characterised by $H_o = c/R_H$

The Dark Matter region is defined in the contracting AdS lightpath, approaching the expanding dS spacetime, but includes any already occupied AdS spacetime. The Baryon seeded Universe will intersect the 'return' of the inflaton lighpath at n=2-√2=0.586 for (DM=22.09 %; BM=5.55%; DE=72.36%).

The Dark Energy is defined in the overall critical deceleration and density parameters; the DE being defined in the pressure term from the Friedmann equations and changes sign from positive maximum at the inflaton-instanton to negative in the interval L(n)>0 for n in [n_{ps} - 0.18023) and L(n)> 3.4008 with L(n)<0 for n in (0.1803 - 3.4008)with absolute minimum at n=0.2389.

This DE (quasi)pressure term for the present era (1-0.1498 for 85% DM as 4.85% BM and 27.48% DM and 67.67% DE) is positive and calculates as 6.696 x10^{-11} N/m^2, translating into a Lambda of 1.039x10^{-36} s^{-2} and 1.154x10^{-53} m^{-2}. This pressure term will become asymptotically negative for a universal age of about 57.4 Gy, and for the zero curvature evolution of the cosmos.



Energy Conservation and Continuity

$dE + PdV = TdS = 0$ (First Law of Thermodynamics) for a cosmic fluid and scaled Radius $R=a.R_o$; $dR/dt = da/dt.R_o$ and $d^2R/dt^2 = d^2a/dt^2.R_o$

$dV/dt = \{dV/dR\}.\{dR/dt\} = 4\pi a^2 R_o^3.\{da/dt\}$

$dE/dt = d(mc^2)/dt = c^2.d\{\rho V\}/dt = (4\pi R_o^3.c^2/3)\{a^3.d\rho/dt + 3a^2\rho.da/dt\}$

$dE + PdV = (4\pi R_o^3.a^2)\{\rho c^2.da/dt + [ac^2/3].d\rho/dt + P.da/dt\} = 0$ for the cosmic fluid energy pressure continuity equation:

$d\rho/dt = -3\{(da/dt)/a.\{\rho + P/c^2\}\}$ ....(1z)

The independent Einstein Field Equations of the Robertson-Walker metric reduce to the Friedmann equations:

$H^2 = \{(da/dt)/a\}^2 = 8\pi G\rho/3 - kc^2/a^2 + \Lambda/3$..............(2z)

$\{(d^2a/dt^2)/a\} = -4\pi G/3\{\rho + 3P/c^2\} + \Lambda/3$ ....(3z)

for scale radius $a=R/R_o$; Hubble parameter $H = \{da/dt\}/a\}$; Gravitational Constant G;

Density ρ; Curvature k ; light speed c and Cosmological Constant Λ.

Differentiating (2z) and substituting (1z) with (2z) gives (3z):

$\{2(da/dt).(d^2a/dt^2).a^2 - 2a.(da/dt).(da/dt)^2\}/a^4 = 8\pi G.(d\rho/dt)/3 + 2kc^2.(da/dt)/a^3 + 0$
$= (8\pi G/3)\{-3\{(da/dt)/a.\{\rho + P/c^2\}\} + 2kc^2.(da/dt)/a^3 + 0$

$(2(da/dt)/a).\{(d^2a/dt^2).a - (da/dt)^2\}/a^2$
$= (8\pi G/3)\{-3(da/dt)/a\}.\{\rho + P/c^2\} + 2\{(da/dt)/a\}.(kc^2/a^2) + 0$
$2\{(da/dt)/a\}.\{(d^2a/dt^2).a - (da/dt)^2\}/a^2$
$= 2\{(da/dt)/a\}\{-4\pi G.\{\rho + P/c^2\} + (kc^2/a^2)\} + 0$ with $kc^2/a^2=8\pi G\rho/3 + \Lambda/3 - \{(da/dt)/a\}^2$

$d\{H^2\}/dt = 2H.dH/dt = 2\{(da/dt)/a\}.dH/dt$ $dH/dt = \{[d^2a/dt^2]/a - H^2\}$
$= \{-4\pi G.(\rho+ P/c^2) + 8\pi G\rho/3 + \Lambda/3 -H^2\} = -4\pi G/3(\rho + 3P/c^2) + \Lambda/3 - H^2\}$
$= -4\pi G/3(\rho + 3P/c^2) + \Lambda/3 - 8\pi G\rho/3 + kc^2/a^2 - \Lambda/3\} = -4\pi G.(\rho + P/c^2) + kc^2/a^2$

$dH/dt = -4\pi G\{\rho+P/c^2\}$ as the Time derivative for the Hubble parameter H for flat Minkowski space-time with curvature k=0

$\{(d^2a/dt^2).a - (da/dt)^2\}/a^2 = -4\pi G\{\rho+ P/c^2\} + (kc^2/a^2) + 0$
$= -4\pi G\{\rho + P/c^2\} + 8\pi G\rho/3 - \{(da/dt)/a\}^2 + \Lambda/3$

$\{(d^2a/dt^2)/a\} = (-4\pi G/3)\{3\rho + 3P/c^2- 2\rho\} = (-4\pi G/3)\{\rho + 3P/c^2\} + \Lambda/3 = dH/dt + H^2$
For a scale factor $a=n/[n+1] = \{1-1/[n+1]\} = 1/\{1+1/n\}$

$dH/dt + 4\pi G\rho = - 4\pi GP/c^2$ .... (for $V_{4/10D}=[4\pi/3]R_H^3$ and $V_{5/11D}=2\pi^2R_H^3$ in factor $3\pi/2$)

For the k^th universe: $a_{reset} = R_k(n)_{AdS}/R_k(n)_{dS} + ½ = n-\sum\prod n_{k-1}+\prod n_k +½$

Scale factor modulation at $N_k=\{[n-\sum\prod n_{k-1}]/\Pi n_k \} = ½$ reset coordinate

$\{dH/dt\} = a_{reset} .d\{H_o/T(n)\}/dt = - H_o^2(2n+1)(n+3/2)/T(n)^2$ for k=0

$dH/dt + 4\pi G\rho = - 4\pi GP/c^2$

$\{dH/dt\} = a_{reset} .d\{H_o/T(n)\}/dt = - H_o^2(2n+1)(n+3/2)/T(n)^2$……………………(4z)

$-H_o^2(2n+1)(n+3/2)/T(n)^2 + G_oM_o/\{R_H^3(n/[n+1])^3\}\{4\pi\} = \Lambda(n)/\{R_H(n/[n+1])\} + \Lambda/3$

$-2H_o^2\{[n+1]^2-¼\}/T[n]^2 + G_oM_o/R_H^3(n/[n+1])^3\{4\pi\} = \Lambda(n)/R_H(n/[n+1]) + \Lambda/3$

$-2H_o^2\{[n+1]^2-¼\}/T(n)^2 + 4\pi.G_oM_o/R_H^3(n/[n+1])^3 = \Lambda(n)/R_H(n/[n+1]) + \Lambda/3$

For a scale factor a=n/[n+1] = {1-1/[n+1]} = 1/{1+1/n} with

$H_{dS}=V(n)/R(n)=\{c/[n+1]^2\}/\{[n+1]/nR_H\}=H_o/n[n+1]=H_o/T(n)$

$H_{AdS}=H_o/n$ and a reset coordinate for the QBBS for n'=2 and dark energy onset n=½

$R(n)_{AdS}/R(n)_{dS}=\{nR_H\}/\{nR_H/[n+1]\}=n+1=\{n'-½\}$ for $n'=n+3/2=a_{reset}$

$\Lambda(n)/R_H(n/[n+1]) = -4\pi GP/c^2 = G_oM_o/R_H^3(n/[n+1])^3 - 2H_o^2/(n[n+1]^2)$

and Λ = 0

for $-P(n) = \Lambda(n)c^2[n+1]/4\pi G_onR_H = \Lambda(n)H_oc[n+1]/4\pi G_on$

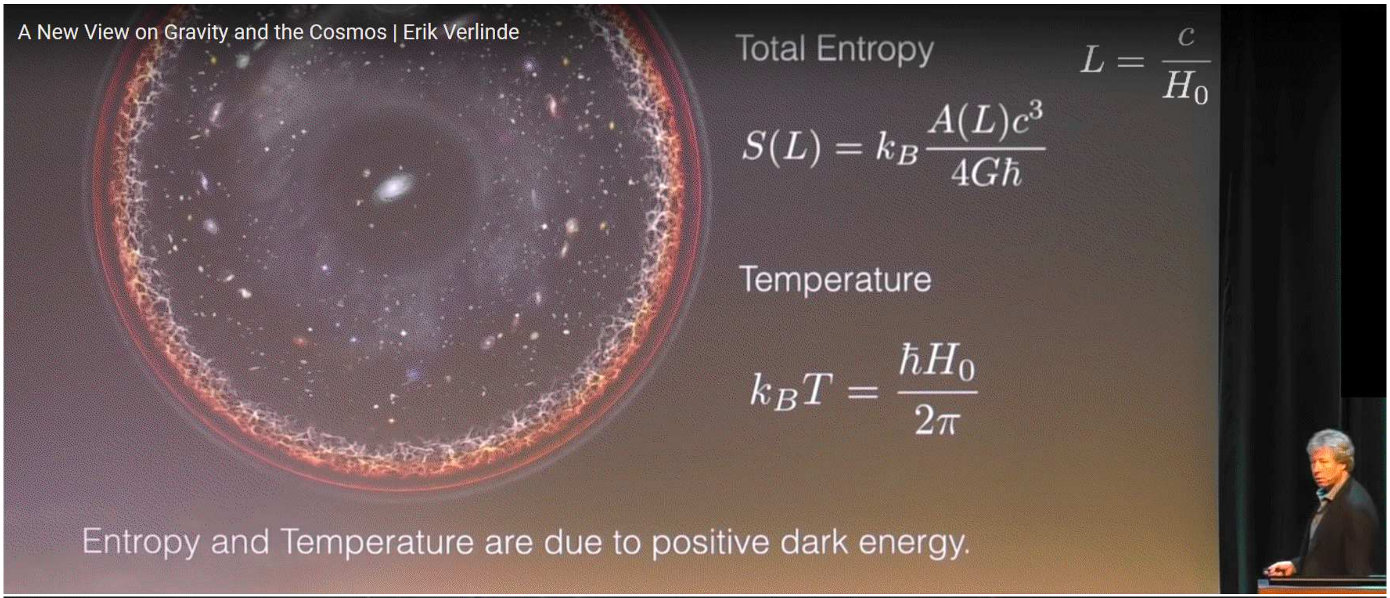
$= M_oc^2[n+1]^3/4\pi n^3R_H^3 - H_o^2c^2/2\pi G_on[n+1]^2$

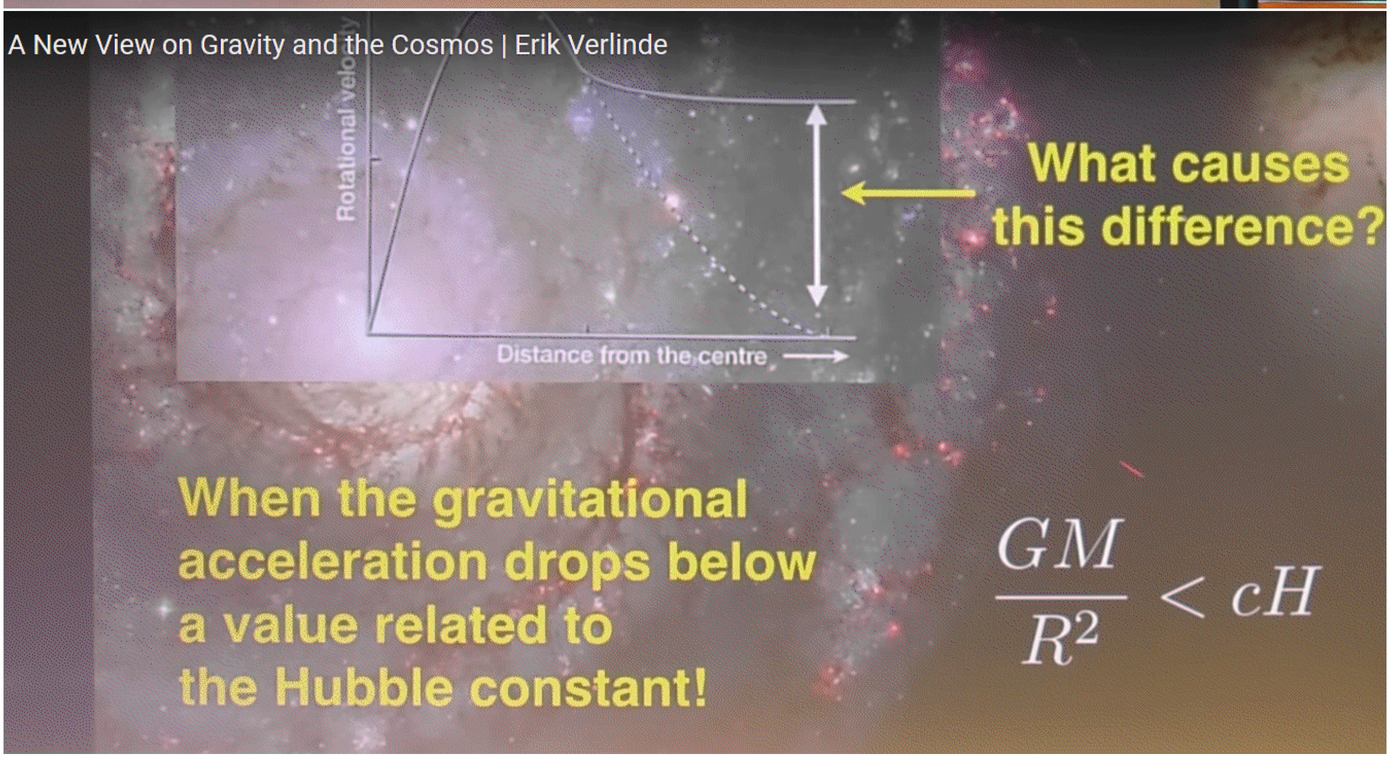
For n=1.132711............

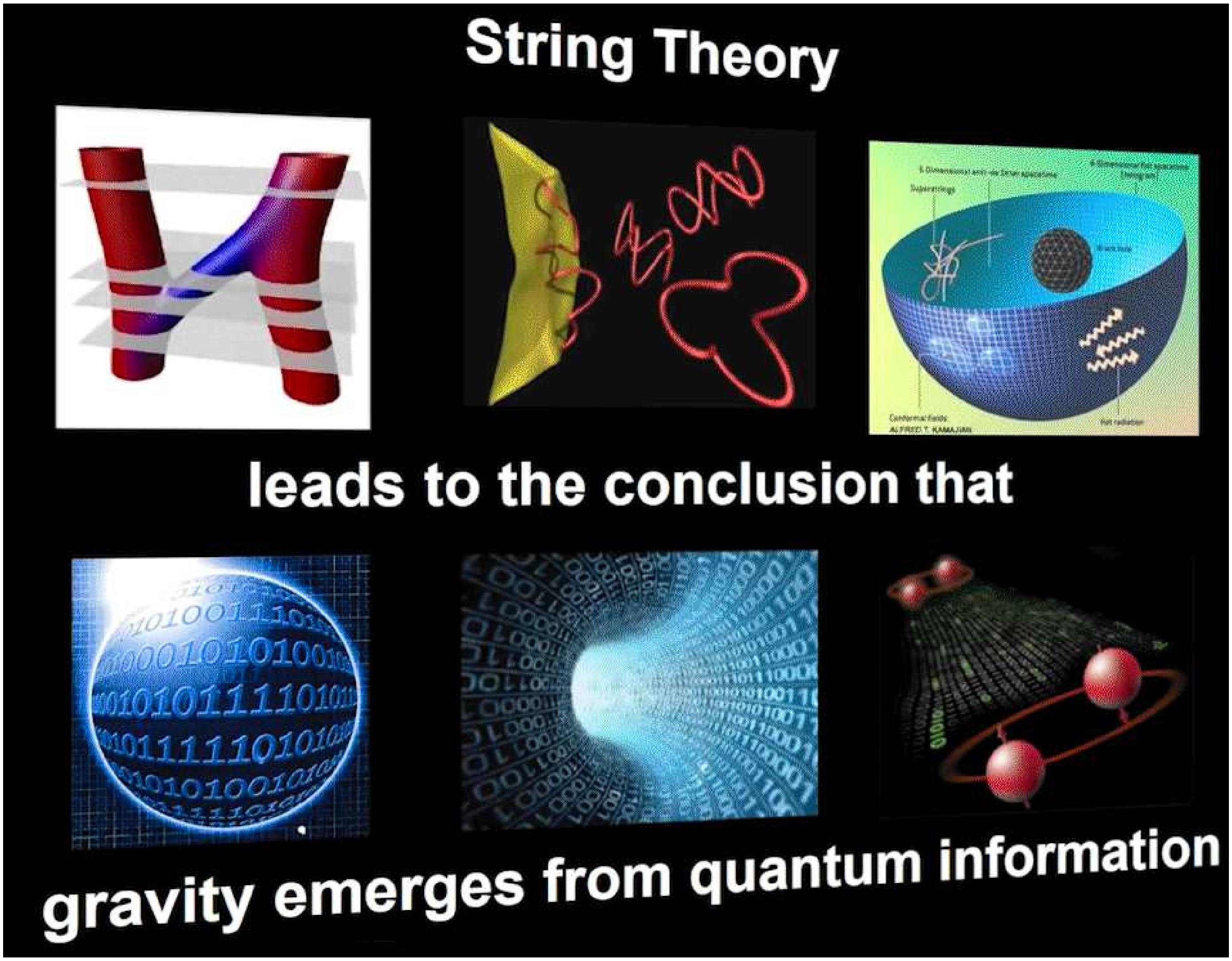
$-(+6.696373\times10^{-11}\,J/m^3)^* = (2.126056\times10^{-11}\,J/m^3)^* + (-8.8224295\times10^{-11}\,J/m^3)^*$

Negative Dark Energy Pressure = Positive Matter Energy + Negative Inherent Milgröm Deceleration (cH_o/G_o)

The Dark Energy and the 'Cosmological Constant' exhibiting the nature of an intrinsic negative pressure in the cosmology become defined in the overall critical deceleration and density parameters. The pressure term in the Friedmann equations being a quintessence of function n and changing sign from positive to negative to positive as indicated.
For a present measured deceleration parameter q_{dS}=-0.5586, the DE Lambda calculates as 6.696×10^{-11} ($N/m^2=J/m^3$)*, albeit as a positive pressure within the negative quintessence.
The Einstein Lambda then becomes then the energy-acceleration difference between the baryonic mass content of the universe and an inherent mass energy related to the initial condition of the oscillation parameters for the nodal Hubble Constant.


A New View on Gravity and the Cosmos | Erik Verlinde
Total Entropy
$L = \frac{c}{H_0}$
$S(L) = k_B \frac{A(L)c^3}{4G\hbar}$
Temperature
$k_B T = \frac{\hbar H_0}{2\pi}$
Entropy and Temperature are due to positive dark energy.


A New View on Gravity and the Cosmos | Erik Verlinde
Rotational velo
Distance from the centre
What causes this difference?
When the gravitational acceleration drops below a value related to the Hubble constant!
$\frac{GM}{R^2} < cH$



For the minimum Planck-Oscillator: $E_{op} = \frac{1}{2}hf_{op} = \frac{1}{2}m_{op}c^2 = \frac{1}{2}k_BT_{op} = Mc^2/\#bits$
$=\{Mc^2.l_{planck}{}^2\}/\{4\pi R^2\} = \{MG_oh/8\pi^2cR^2\} = \{hg/8\pi^2c\}$ with gravitational acceleration $g = G_oM/R^2$ and
$M=gR^2/G_o$ for $k_BT = hg/4\pi^2c$ = {String T-Duality modulation factor ζ}{hg/c}
ζ = Linearization of Compton wave matter in de Broglie wave matter

$r_{ps}/r_{ss} = \{\lambda_{ps}/2\pi\}/\{2\pi\lambda_{ss}\} = \{\lambda_{ps}{}^2/4\pi^2\} = \{1/4\pi^2.\lambda_{ss}{}^2\} = 10^{-44}/4\pi^2$

for $4\pi=HM/HUM=\{hc^3/4\pi G_ok_B\}/\{hc^3/16\pi^2G_ok_B\}$

The gravitational acceleration in Quantum Relativity g as the Weyl-wormhole gravitational acceleration then is $g_{ps} = c.f_{ps}$

for $E_{ps} = hf_{ps} = hc.f_{ps}/c = k_BT_{ps} = hg_{ps}/c$ and generalizes as the Milgröm acceleration $-2cH_o/(n+1)^3$ in the cosmology in $g \propto cH_o$.

$dE = TdS$ for $c^2dM = (2k_BT.c^3)dA/4G_oh$ for $dM = \{hgc/2\pi c\}dA/\{4G_oh\} = \{g/8\pi G_o\}dA$ $dM/dA = \{g/8\pi G_o\}$

$dS/dA = k_B/4l_{planck}^2 = 2\pi k_Bc^3/4hG_o$ from Entropy $S=k_BA/4l_{planck}^2 = \pi c^3k_BA/2G_oh$ with $dS=2\pi k_B$ from $dE/dS = T$ and $E = \Sigma TdS = k_BT$ in the quantum self-state $dM/dS = \{dM/dA\}.\{dA/dS\} = \{g/8\pi G_o\}.\{4l_{planck}^2/k_B\}= \{gl_{planck}^2/2\pi k_BG_o\} = \{hg/4\pi^2k_Bc^3\}= \zeta\{hg/k_Bc^3\}$

https://arxiv.org/pdf/1611.02269.pdf

The scale factor ($a=n/[n+1]$) radius at the instanton-inflaton is $R(n_{ps})=R_H(n_{ps}/(n_{ps}+1)\}=R_H\lambda_{ps}/R_H=\lambda_{ps}$ in the limit for $n_{ps}=\lambda_{ps}/R_H=6.259\times10^{-49}\sim0$

The Universal Temperature Evolution in light paths EMI and EMMI

$n=H_ot$ t=	**Radius m* $R(n)=R_H\{n/[n+1]$**	**Mod factor**	**Quantum Modulation $E=hc/\lambda$**	**Cosmological comoving redshift $z+1=\sqrt{\{1+2/n[n+2]\}}$ Energy J*/GeV***	**Temperature CBBR $T=\sqrt[4]{\{18.2(n+1)^2/n^3\}}$ of cycle time n $T_{Hawking}/T_{ylem} = 1 = hcR_e^3/2\pi G_om_c^2R_{ylem}^2$ RHawking Boson Energy E=kT**	**Hawking μbh Radius Ylem Radius Hawking Mass**	**Hawking Temp $T_{Hawking}=hc^3/4\pi k_BG_oM_{Hawking}$ Ylem Radius $R_{ylem}=\sqrt{\{k_BTR_e^3/G_om_c^2\}}$ Hawking Radius $R_{Hawking}=hc/2\pi k_BT_{Hawking}$ Hawking Mass $M_{Hawking}=R_{Hawking}c^2/2G_o$**
1.132711 19.116 Gy	$R_H(n_p)=1.80970456\times10^{26}$ EMMI $R_H(n_p)=8.48546550\times10^{25}$ EMI	-	-	0.2505 Local Flow	2.747 K* 3.88×10^{-23} J*/0.00024 eV*	8.2081×10^{-4} m* 0.08715 m* 3.32428×10^{23} kg*	Ylem Mass is ~ 5.88 earth masses
1 16.876 Gy	$R_H(1)=1.597675453\times10^{26}$ EMMI $R_H(1)=7.988377266\times10^{25}$ EMI	-	-	0.2910 Limit Local flow	2.921 K* 4.12×10^{-23} J*/0.00026 eV*	7.7192×10^{-4} m* 0.08986 m* 3.1263×10^{23} kg*	H_o=58.04 km/Mpc.s
0.8673 14.637 Gy	$R_{Ddec}=1.386\times10^{26}$ EMMI (AdS to dS) $R_{Ddec}=7.421\times10^{25}$ EMI (dS to AdS)	-	-	0.3432	3.140 K* 4.43×10^{-23} J*/0.00028 eV*	7.1808×10^{-4} m* 0.09317 m* 2.9082×10^{23} kg*	Measured present age of universe $H(n)=H_o/(2-n_p)$=66.92 km/Mpc.s
½ 8.438 Gy	$R_{Ddec}=7.988\times10^{25}$ EMMI (AdS to dS) $R_{Ddec}=5.326\times10^{25}$ EMI (dS to AdS)	-	-	0.9149	4.254 K* 6.01×10^{-23} J*/0.00037 eV*	5.3003×10^{-4} m* 0.10845 m* 2.1466×10^{23} kg*	Onset of dark energy
0.26542 4.479 Gy	$R_{Ddec}=4.241\times10^{25}$ EMMI (AdS to dS) $R_{Ddec}=3.351\times10^{25}$ EMI (dS to AdS)	-	-	1.0800	6.283 K* 8.87×10^{-23} J*/0.00055 eV*	3.5887×10^{-4} m* 0.13180 m* 1.4534×10^{23} kg*	

0.2389 4.032 Gy	$R_{Ddec}=3.817\text{x}10^{25}$ EMMI (AdS to dS) $R_{Ddec}=3.081\text{x}10^{25}$ EMI (dS to AdS)	-	-	1.1770	6.728 K* $9.50\text{x}10^{-23}$ J*/0.00059 eV*	$3.3513\text{x}10^{-4}$ m* 0.13638 m* $1.3573\text{x}10^{23}$ kg*	Peak of galaxy formation
0.13271 2.240 Gy	$R_{Ddec}=2.120\text{x}10^{25}$ EMMI (AdS to dS) $R_{Ddec}=1.872\text{x}10^{25}$ EMI (dS to AdS)	-	-	1.8401	9.998 K* $1.41\text{x}10^{-22}$ J*/0.00088 eV*	$2.2552\text{x}10^{-4}$ m* 0.16623 m* $9.1336\text{x}10^{22}$ kg*	Image of $n_{present}$
0.10823 1.827 Gy	$R_{Ddec}=1.729\text{x}10^{25}$ EMMI (AdS to dS) $R_{Ddec}=1.560\text{x}10^{25}$ EMI (dS to AdS)	-	-	2.1249	11.523 K* $1.63\text{x}10^{-22}$ J*/0.00101 eV*	$1.9568\text{x}10^{-4}$ m* 0.17849 m* $7.9248\text{x}10^{22}$ kg*	Galaxy formation for Einstein quintessence balanced by Milgröm intrinsic deceleration and $\Lambda_o=0$
0.059255 1 Gy	$R_{Ddec}=9.467\text{x}10^{24}$ EMMI (AdS to dS) $R_{Ddec}=8.937\text{x}10^{24}$ EMI (dS to AdS)	-	-	3.1702	17.700 K* $2.50\text{x}10^{-22}$ J*/0.00156 eV*	$1.2739\text{x}10^{-4}$ m* 0.22121 m* $5.1592\text{x}10^{22}$ kg*	1st Stars from galactic seeds
0.056391 0.95166 Gy	$R_{Ddec}=9.009\text{x}10^{24}$ EMMI (AdS to dS) $R_{Ddec}=8.529\text{x}10^{24}$ EMI (dS to AdS)	-	-	3.2717	18.345 K* $2.59\text{x}10^{-22}$ J*/0.00161 eV*	$1.2291\text{x}10^{-4}$ m* 0.22521 m* $4.9778\text{x}10^{22}$ kg*	Radiation-Matter equilibrium begin star formation
0.0430041 725,742 My	$R_{Ddec}=6.871\text{x}10^{24}$ EMMI (AdS to dS) $R_{Ddec}=6.587\text{x}10^{24}$ EMI (dS to AdS)	$3.51\text{x}10^{20}$	$R_{ALGO}=2\pi L_{ALGO}=5.32558484\text{x}10^{-5}$ $L_{ALGO}=r_{ALGO}=8.47593\text{x}10^{-6}$ Universe the size of smallest life bio-organisms; cellular complex	3.8748	22.337 K* $3.15\text{x}10^{-22}$ J*/0.00196 eV*	$1.0094\text{x}10^{-4}$ m* 0.24851 m* $4.0882\text{x}10^{22}$ kg*	Completion of Inversion Modulation for the Algo wavelength in spacetime from spacetime of supermembrane EpsEss in Sarkar supercluster scale
$2nq_o=0.02803012$ 473.039 My	$R_{sarkar}=2G_oM_o/c^2=4.47830347\text{x}10^{24}$	$1.62\text{x}10^{20}$	$3.62044\text{x}10^{-5}$	5.0152	30.570 K* $4.32\text{x}10^{-22}$ J*/0.00269 eV*	$7.3757\text{x}10^{-5}$ m* 0.29071 m* $2.9871\text{x}10^{22}$ kg*	dark matter galaxies from supercluster seed manifest honey-comb universal geometry baryon seed $m_{obaryon}=0.02803=M_o/M_H=2\Lambda_o/A_{dB}$
$nq_o=0.01401506$ 236.520 My	$R_{sarkar}=G_oM_o/c^2=2.23915174\text{x}10^{24}$	$4.05\text{x}10^{19}$	$1.81022\text{x}10^{-5}$	7.4777	51.062 K* $7.21\text{x}10^{-22}$ J*/0.00449 eV*	$4.4157\text{x}10^{-5}$ m* 0.37572 m* $1.7884\text{x}10^{22}$ kg*	Quasar wall - 1st protostars from supercluster seeds Deceleration parameter $q_o=½M_o/M_H=\Lambda_o/A_{dB}$
$½nq_o=0.00700753$ 118.260 My	$R_{sarkar}=½G_oM_o/c^2=1.11957587\text{x}10^{24}$	$1.01\text{x}10^{19}$	$9.0511\text{x}10^{-6}$	10.967	85.578 K* $1.21\text{x}10^{-21}$ J*/0.00752 eV*	$2.6347\text{x}10^{-5}$ m* 0.48641 m* $1.0671\text{x}10^{22}$ kg*	White Hole-Black Hole Sarkar modulation Birth of 1st galaxies like the Milky Way form as baryon seed for dark matter galaxies protostars manifest from ylem white hole-black hole coupling
$3.934\text{x}10^{-4}$ 6.63948 My	$r_{ss}=2\pi\lambda_{ss}=6.283\text{x}10^{22}$	$3.19\text{x}10^{16}$	$5.07943\text{x}10^{-7}$	49.421	358.05 K*	$6.2973\text{x}10^{-6}$ m*	Modular wormhole perimeter

					5.05×10^{-21} J*/0.03146 eV*	0.99494 m* 2.5504x10^{21} kg*	White Hole upper limit as wormhole sourcesink E_{ps} begins to activate as black hole power sourcesink Ess dark matter galaxies geometry
8.659×10^{-5} 4.6113×10^{13} 1.46127 My	1.383395×10^{22}	1.55×10^{15}	1.118392×10^{-7}	106.468	2301.04 K* 3.25×10^{-20} J*/0.20221 eV*	9.79888 3×10^{-7} m* 2.5222 m* 3.9685x10^{20} kg*	$R_{Hawking}=R_e/\alpha^4=9.798883\times10^{-7}$ m*
6.259×10^{-5} 1.05636 My	$\lambda_{ss}=10^{22}$	8.08×10^{14}	8.0844×10^{-8}	125.40	2935.13 K* 4.14×10^{-20} J*/0.25793 eV*	7.6820x10^{-7} m* 2.84864 m* 3.1112x10^{20} kg*	Reionization end of opaque universe Baryogenesis and atomic structure
2.303×10^{-5} 388,596.8 y	$\lambda_{ss}=10^{22}/e=3.678794412\times10^{21}$	1.09×10^{14}	2.974085×10^{-8}	207.40	6213.74 K* 8.77×10^{-20} J*/0.54605 eV*	3.6287x10^{-7} m* 4.14477 m* 1.4696x10^{20} kg*	Reionization end of opaque attenuated universe
9.962×10^{-6} 168,115.7 y	$\lambda_{ss}/2\pi=1.592\times10^{21}$	2.05×10^{13}	1.28704×10^{-8}	315.83	11,648.4 K* 1.64×10^{-19} J*/1.0236 eV*	1.9357x10^{-7} m* 5.67488 m* 7.8395x10^{19} kg*	macro quantum superstrings as supercluster seeds 168,115 y to 486,681 My; 11,648-358 K*
6.903×10^{-7} 11,649.5 y	1.1028646×10^{20}	9.83×10^{10}	$R_{OPL}=2\pi L_{OPL}=8.916\times10^{-10}$ $L_{OPL}=r_{OPL}=1.419\times10^{-10}$ Universe the size of an atom	1202.6	86,246.7 K* 1.22×10^{-18} J*/7.5792 eV*	2.6143x10^{-8} m* 15.4417 m* 1.0588x10^{19} kg*	Supermembrane modulation for the Planck length bounce in spacetime from spacetime on a characteristic galaxy scale $R_{ylem}=R_{curv}$ for $M_{ylem}=6.25\times10^{27}$ kg*/0.003M_{sun}
5.897×10^{-8} 995.22 y	9.42184766×10^{18}	7.18×10^{8}	$R_{PL}=2\pi L_{PL}=7.617\times10^{-11}$ $L_{PL}=r_{PL}=1.212\times10^{-11}$ Universe the size of the Bohr atom scale $\lambda_{bohr1}=R_e/\alpha^2$	4116.9	545,798.3 K* 7.71×10^{-18} J*/47.964 eV*	4.1311x10^{-9} m* 38.8454 m* 1.6731x10^{18} kg*	Supermembrane modulation for the Planck length in spacetime from spacetime on a characteristic galactic core scale $R_{ylem}=R_{curv}$ for $M_{ylem}=1.57\times10^{28}$ kg*/0.008M_{sun}
5.038×10^{-9} 85.019 y	8.0488332×10^{17}	5.24×10^{6}	$R_{MO}=2\pi L_{MO}=6.507\times10^{-12}$ $L_{MO}=r_{MO}=1.036\times10^{-12}$ Universe the size of the wave matter de Broglie quantum scale $\lambda_{dB}=h/mc$	14,087.9	3.4541×10^{6} K* 4.88×10^{-17} J*/303.54 eV*	6.5278x10^{-10} m* 97.7217 m* 2.6438x10^{17} kg*	Supermembrane modulation for the maximum monopole scale in spacetime from spacetime on a characteristic galactic core black hole scale $R_{ylem}=R_{curv}$ for $M_{ylem}=3.96\times10^{28}$ kg*/0.020M_{sun}

1.741×10^{-10} 2.938 y	2.781058×10^{16}	6252.7	2.24832×10^{-13}	75,793.8	4.3217×10^{7} K* 6.10×10^{-16} J*/3.798 keV* Fusion temperature Mass limit for star formation	5.2172×10^{-11} m* 345.661 m* 2.1130×10^{16} kg*	$R_{Hawking}=R_e/\alpha^2=1^{st}$ Bohr radius for ylemic template for atomic structure as micro Hawking black hole to manifest at $R_{Hawking}/\alpha^4=9.798883\times10^{-7}$ m* $R_{ylem}=R_{curv}$ for $M_{ylem}=1.40\times10^{29}$ kg*/$0.070M_{sun}$
1.679×10^{-10} 2.834 y	2.6829444×10^{16}	5819.3	$R_{MO}=2\pi L_{MO}=2.169\times10^{-13}$ $L_{MO}=r_{MO}=3.451\times10^{-14}$ Universe the size of the Compton quantum scale $R_{compton}=R_e/\alpha=h/2\pi mc$	77,167.2	4.4277×10^{7} K* 6.25×10^{-16} J*/3.891 keV*	5.0924×10^{-11} m* 349.874 m* 2.0624×10^{16} kg*	Supermembrane modulation for the minimum monopole scale in spacetime from spacetime on a characteristic star globular cluster scale $R_{ylem}=R_{curv}$ for $M_{ylem}=1.42\times10^{29}$ kg*/$0.071M_{sun}$
1.608×10^{-11} 99.094 days	$2\pi\lambda^*=2.568524393\times10^{15}$ Monopolar upper classical bound	$8\pi^3\lambda^*r^*$ 53.335	$4\pi^2r^*=2.07650\times10^{-14}$ Monopolar upper quantum bound	249,402.7	2.5726×10^{8} K* 3.63×10^{-15} J*/22.607 keV*	8.7645×10^{-12} m* 843.354 m* 3.5496×10^{15} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=3.42\times10^{29}$ kg*/$0.171M_{sun}$
1.496×10^{-11} 92.203 days	2.389899×10^{15}	46.175	1.93209×10^{-14}	258,554.9	2.7155×10^{8} K* 3.83×10^{-15} J*/23.863 keV*	8.3034×10^{-12} m* 866.452 m* 3.3629×10^{15} kg*	$R_{Hawking}=R_e/2\pi\alpha^2=1^{st}$ Bohr radius Ess modulation Pauli exclusion principle for electrons $R_{ylem}=R_{curv}$ for $M_{ylem}=3.51\times10^{29}$ kg*/$0.175M_{sun}$
1.351×10^{-11} 83.290 days	$2\pi R_E=2.158884301\times10^{15}$	$4\pi^2R_ER_e$ 37.680	$2\pi R_e=1.74533\times10^{-14}$	272,037.0	2.9306×10^{8} K* 4.14×10^{-15} J*/25.754 keV*	7.6939×10^{-12} m* 900.123 m* 3.1160×10^{15} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=3.65\times10^{29}$ kg*/$0.182M_{sun}$
2.559×10^{-12} 15.771 days	$\lambda^*=4.087933536\times10^{14}$ Monopolar mean classical bound	$2\pi r^*\lambda^*$ MQB= 1.351	$2\pi r^*=3.30485\times10^{-15}$ Monopolar mean quantum bound	625,160.7	1.0210×10^{9} K* 1.44×10^{-14} J*/89.723 keV*	2.2084×10^{-12} m* 1,680.10 m* 8.9440×10^{14} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=6.80\times10^{29}$ kg*/$0.340M_{sun}$
2.253×10^{-12} 1.2×10^{6} s* 13.888 days	$R_E^*=3.6\times10^{14}$ as $360\times R_e\times10^{12}=1/R_E^*$	1	$R_e^*=R_e=10^{10}\lambda_{ps}/360$	666,181.2	1.1231×10^{9} K* 1.59×10^{-14} J*/98.696 keV*	2.0076×10^{-12} m* 1,762.10 m* 8.1309×10^{14} kg*	unity modulation bounded by Dirac's monopole $R_{ylem}=R_{curv}$ for $M_{ylem}=7.14\times10^{29}$ kg*/$0.357M_{sun}$
2.151×10^{-12} 13.256 days	$R_E=\sqrt[3]{E}(\lambda_{weyl}/2\pi)=3.43597108\times10^{14}$	R_ER_e 0.9544	$R_e=2.7777\times10^{-15}$	681,897.2	1.1630×10^{9} K* 1.64×10^{-14} J*/102.20 keV*	1.9387×10^{-12} m* 1,793.137 m* 7.8519×10^{14} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=7.26\times10^{29}$ kg*/$0.363M_{sun}$
1.329×10^{-12} 8.193 days	2.1235470×10^{14}	0.36456	$XR_e=1.716761\times10^{-15}=\sqrt[3]{A}$ for $A=5=(2X+1)^2$	867,386.8	1.6685×10^{9} K*	1.3514×10^{-12} m*	$R_{ylem}=R_{curv}$ for $M_{ylem}=8.70\times10^{29}$ kg*/$0.435M_{sun}$

			Atomic radius for nucleus $XR_e/MQB=1.2707\sqrt[3]{A}$ with A the atomic number		$2.36x10^{-14}$ J*/146.62 keV*	2,147.764 m* $5.4731x10^{14}$ kg*	
$1.075x10^{-12}$ 6.628 days	$1.7179379x10^{14}$	0.2386 ~ $\sqrt[3]{X}$	$½R_e=1.38885x10^{-15}$ $½\{X+½X\}R_e=¾XRe=1.2875x10^{-15}$ $\sim XR_e/MQB$	964,362.2	$1.9560x10^9$ K* $2.76x10^{-14}$ J*/171.89 keV*	$1.1527x10^{-12}$ m* 2,325.455 m* $4.6686x10^{14}$ kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=9.42x10^{29}$ kg*/$0.471M_{sun}$
$6.646x10^{-13}$ 4.096 days	$1.06177383x10^{14}$	0.0911	$½XR_e=8.583806x10^{-16}$ Proton charge radius for neutron degeneracy	$1.22667x10^6$	$2.8061x10^9$ K* $3.96x10^{-14}$ J*/246.59 keV*	$8.0352x10^{-13}$ m* 2,785.320 m* $3.2543x10^{14}$ kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=1.13x10^{30}$ kg*/$0.564M_{sun}$
$4.072x10^{-13}$ 2.510 days	$R^*=\lambda^*/2\pi=6.506148293x10^{13}$ Monopolar lower classical bound	r*R* 0.0342	$r^*=R_eR^*/R_E=5.2598x10^{-16}$ Monopolar lower quantum bound	$1.56705x10^6$	$4.0517x10^9$ K* $5.72x10^{-14}$ J*/356.06 keV*	$5.5650x10^{-13}$ m* 3,346.896 m* $2.2538x10^{14}$ kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=1.36x10^{30}$ kg*/$0.678M_{sun}$
$3.423x10^{-13}$ 2.110 days	$R_E/2\pi=5.468517817x10^{13}$	$R_ER_e/4\pi^2$ 0.0242	$R_e/2\pi=4.42097x10^{-16}$	$1.70926x10^6$	$4.6156x10^9$ K* $6.52x10^{-14}$ J*/405.61 keV*	$4.8851x10^{-13}$ K* 3,572.215 m* $1.9785x10^{14}$ kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=1.45x10^{30}$ kg*/$0.723M_{sun}$
$2.455x10^{-13}$ 1.513 days	$3.92162x10^{13}$	0.0124	$3.17040x10^{-16}$	$2.0184x10^6$	$5.9229x10^9$ K* $8.36x10^{-14}$ J*/520.49 keV*	$3.80686x10^{-13}$ m* 4,045.503 m* $1.5418x10^{14}$ kg*	$R_{Hawking}=R_e/\alpha$=Compton radius Electron degeneracy surface for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=1.64x10^{30}$ kg*/$0.819M_{sun}$
$1.443x10^{-13}$ 76,863.6 s* 21.35 hours	$2.30591x10^{13}$	$4.30x10^{-3}$	$1.86419x10^{-16}$	$2.6322x10^6$	$8.8207x10^9$ K* $1.25x10^{-13}$ J*/775.15 keV*	$2.5562x10^{-13}$ m* 4,938.271 m* $1.0353x10^{14}$ kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=2.00x10^{30}$ kg*/$1..000M_{sun}$
$4.895x10^{-14}$ 26,069.4 s* 7.24 hours	$7.82083x10^{12}$	$4.95x10^{-4}$	$6.32267x10^{-17}$	$4.5198x10^6$	$1.9847x10^{10}$ K* $2.80x10^{-13}$ J*/1.744 MeV*	$1.1361x10^{-13}$ m* 7,407.407 m* $4.6011x10^{13}$ kg*	Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{R_e\}^3$ $(1.105\text{-}1.907)x10^{16}$ [kg/m^3]* $M=\Sigma m_{ss}=\Sigma hf_{ss}/c^2$ mass quantization for space quanta count $M/\Sigma m_{ss}=h/m_{ss}c^2=hf_{ps}/h=f_{ps}\|_{mod}=3x10^{30}$ as $M_{chandra}$= 1.50 M_{Sun}
$2.117x10^{-14}$ 11,274.58 s* 3.132 hours	$3.38237x10^{12}$	$9.25x10^{-5}$	$2.73445x10^{-17}$	$6.8728x10^6$	$3.7215x10^{10}$ K* $5.25x10^{-13}$ J*/3.270 MeV*	$6.05875x10^{-14}$ m* 10,143.34 m* $2.4538x10^{13}$ kg*	$R_{Hawking}=R_e/2\pi\alpha$ = Compton radius Ess modulation Electron degeneracy core for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=4.11x10^{30}$ kg*/$2.054M_{sun}$
$1.938x10^{-14}$	$3.0959915x10^{12}$	$7.75x10^{-5}$	$2.502924x10^{-17}$	$7.1836x10^6$	$3.9768x10^{10}$ K*	$5.6698x10^{-14}$ m*	Modulation MQB/0.9544=1.41555 for $M_{chandra}$

10,320.0 s* 2.87 hours					$5.61x10^{-13}$ J*/3.495 MeV*	10,485.55 m* $2.2963x10^{13}$ kg*	lower Tolman-Oppenheimer-Volkoff (TOV) limit for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=4.25x10^{30}$ kg*/2.123 M_{sun}
$1.013x10^{-14}$ 5395.05 s* 1.50 hours	$1.618509x10^{12}$	$2.12x10^{-5}$	$1.3084678x10^{-17}$	$9.9354x10^{6}$	$6.4684x10^{10}$ K* $9.13x10^{-13}$ J*/5.684 MeV*	$3.4858x10^{-14}$ m* 13,372.84 m* $1.4117x10^{13}$ kg*	Neutron decay mass loss: 8.844/4.900=1.805 Increases $M_{chandra}$ to $1.805M_{chandra}=2.708$ M_{sun} as upper TOV-limit for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=5.42x10^{30}$ kg*/2.708 M_{sun}
$4.028x10^{-15}$ 2144.96 s* 32.749 min	$6.43488x10^{11}$	$3.35x10^{-6}$	$5.20221x10^{-18}$	$1.5757x10^{7}$	$1.2919x10^{11}$ K* $1.82x10^{-12}$ J*/11.35 MeV*	$1.7453x10^{-14}$ m* 18,899.00 m* $7.0686x10^{12}$ kg*	$R_{Hawking}=2\pi R_e$ $R_{ylem}=R_{curv}$ for $M_{ylem}=7.65x10^{30}$ kg*/$3.827M_{sun}$
$2.160x10^{-15}$ 1150.36 s* 19.173 min	$R_F=\sqrt[3]{F}(\lambda_{weyl}/2\pi)=3.45107750x10^{11}$	$9.63x10^{-7}$	$R_f=2.789990x10^{-18}$	$2.15163x10^{7}$	$2.0614x10^{11}$ K* $2.91x10^{-12}$ J*/18.12 MeV*	$1.0938x10^{-14}$ m* 23,872.87 m* $4.4299x10^{12}$ kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=9.67x10^{30}$ kg*/$4.834M_{sun}$
$2.123x10^{-15}$ 1130.52 s* 18.8420 min	$R_G=\sqrt[3]{G}(\lambda_{weyl}/2\pi)=3.39155801x10^{11}$	$9.30x10^{-7}$	$R_g=2.741872x10^{-18}$	$2.17042x10^{7}$	$2.0885x10^{11}$ K* $2.95x10^{-12}$ J*/18.35 MeV*	$1.0796x10^{-14}$ m* 24,029.28 m* $4.3724x10^{12}$ kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=9.73x10^{30}$ kg*/$4.866M_{sun}$
$2.084x10^{-15}$ 1109.96 s* 18.499 min	$R_{F'}=\sqrt[3]{F'})(\lambda_{weyl}/2\pi)=3.32987275x10^{11}$	$8.96x10^{-7}$	$R_{f'}=2.69200x10^{-18}$	$2.19044x10^{7}$	$2.1175x10^{11}$ K* $2.99x10^{-12}$ J*/18.61 MeV*	$1.0648x10^{-14}$ m* 24,195.54 m* $4.3125x10^{12}$ kg*	Primordial neutron decay: $\lambda_{F'}-2\pi\lambda_{RMP}$ (1109.96-229.82) s* = 880.14 s*/879.28 s from Higgs Boson with RMP template Neutron decay mass loss: 8.844/4.900=1.805 Increases $M_{chandra}$ to $1.805M_{chandra}=2.708$ M_{sun} as upper TOV-limit for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=9.80x10^{30}$ kg*/$4.900M_{sun}$
$8.754x10^{-16}$ 466.186 s* 7.770 min	$1.39856x10^{11}$	$1.19x10^{-7}$	$8.5232x10^{-19}$	$3.89284x10^{7}$	$5.0167x10^{11}$ K* $7.08x10^{-12}$ J*/44.09 MeV*	$5.55556x10^{-15}$ m* 33,497.33 m* $2.2500x10^{12}$ kg*	$R_{Hawking}=2R_e$ $R_{ylem}=R_{curv}$ for $M_{ylem}=1.3566x10^{31}$ kg*/$6.78M_{sun}$

4.315×10^{-16} 229.821 s* 3.8304 min	$R_{neutrondecay}=6.8946323\times10^{10}$	3.84×10^{-8}	$2\pi\lambda_{RMP}=4\pi^2R_{RMP}=5.57389763\times10^{-19}$	4.81381×10^{7}	6.89874×10^{11} K* 9.74×10^{-12} J*/60.62 MeV*	3.2684×10^{-15} m* 43,672.54 m* 1.3237×10^{12} kg*	Beginning of neutron decay from Higgs Boson with RMP template $R_{ylem}=R_{curv}$ for $M_{ylem}=1.77\times10^{31}$ kg*/8.844M_{sun}
3.474×10^{-16} 185.006 s* 3.083 min	5.550187×10^{10}	2.49×10^{-8}	4.486994×10^{-19}	5.36526×10^{7}	8.1172×10^{11} K* 1.15×10^{-11} J*/71.33 MeV* to 3.1636×10^{12} K*	2.7778×10^{-15} m* 47,372.40 m* 1.1250×10^{12} kg*	$R_{Hawking}=R_e$ limited by $\rho_{nucleon}=m_c/R_e^3$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{R_e\}^3$ $(1.105\text{-}1.907)\times10^{16}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=1.92\times10^{31}$ kg*/9.593M_{sun}
1.829×10^{-16} 97.398 s* 1.623 min	2.921968×10^{10}	6.90×10^{-9}	2.362236×10^{-19}	7.39446×10^{7}	1.3134×10^{12} K* 1.85×10^{-11} J*/115.4 MeV* to 1.3401×10^{13} K*	1.7168×10^{-15} m* 60,257.94 m* 6.9529×10^{11} kg*	$R_{Hawking}=XR_e$ limited by $\rho_{nucleon}=Y^3m_c/R_e^3$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{XR_e\}^3$ $(4.683\text{-}8.077)\times10^{16}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=2.44\times10^{31}$ kg*/12.202M_{sun}
1.379×10^{-16} 73.422 s* 1.224 min	2.202648×10^{10}	3.92×10^{-9}	1.780709×10^{-19}	8.51671×10^{7}	1.6234×10^{12} K* 2.29×10^{-11} J*/142.7 MeV* to 2.5309×10^{13} K*	1.3889×10^{-15} m* 66,994.07 m* 5.6250×10^{11} kg*	$R_{Hawking}=½R_e$=protonic diameter limited by $\rho_{nucleon}=8m_c/R_e^3$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{½R_e\}^3$ $(8.844\text{-}15.253)\times10^{16}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=2.71\times10^{31}$ kg*/13.566M_{sun}
1.172×10^{-16} 62.425 s*	1.87274220×10^{10}	2.84×10^{-9}	$R_{XL}=2\pi L_{XL}=1.514\times10^{-19}$ $L_{XL}=r_{XL}=2.410\times10^{-20}$	9.2365×10^{7}	1.8335×10^{12} K* 2.59×10^{-11} J*/161.1 MeV*	1.2298×10^{-15} m* 71,197.38 m* 4.9806×10^{11} kg*	Supermembrane modulation for the XL-boson string in spacetime from spacetime for quark-lepton differentiation
7.258×10^{-17} 38.650 s*	1.159515×10^{10}	1.09×10^{-9}	9.37398×10^{-20}	1.17383×10^{8}	2.6268×10^{12} K* 3.71×10^{-11} J*/230.8 MeV* to 1.0721×10^{14} K*	8.5838×10^{-16} m* 85,218.27 m* 3.4764×10^{11} kg*	$R_{Hawking}=½XR_e$ limited by $\rho_{nucleon}=8Y^3m_c/R_e^3$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{½XR_e\}^3$ $(3.746\text{-}6.461)\times10^{17}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=3.45\times10^{31}$ kg*/17.257M_{sun}
6.868×10^{-17} 36.577 s*	1.09731481×10^{10} 36.577 s*	9.73×10^{-10}	$\lambda_{RMP}=2\pi R_{RMP}=8.87113360\times10^{-20}$	1.2066×10^{8}	2.7377×10^{12} K* 3.86×10^{-11} J*/240.6 MeV*	8.2360×10^{-16} m* 86,999.42 m* 3.3356×10^{11} kg*	Supermembrane modulation for the dark matter agent RMP in wavelength $\lambda_{RMP}=2\pi R_{RMP}$ dark matter particle 1st wave matter neutron twin is born from ylem neutron in radial manifestation

							$R_{ylem}=R_{curv}$ for $M_{ylem}=3.52\text{x}10^{31}$ kg*/17.617M_{sun}
5.664x10^{-17} 30.164 s*	9.04906x10^{9}	6.62x10^{-10}	7.31562x10^{-20}	1.32875x10^{8}	3.163603x10^{12} K* 4.47x10^{-11} J*/278.0 MeV*	7.1272x10^{-16} m* 93,522.16 m* 2.8865x10^{11} kg*	For electron degeneracy $\rho_{nucleon}=m_c/R_e^3$ for a temperature limit of $T_{Hawking}=m_cc^2/2k_B=3.163603\text{x}10^{12}$ K* = Neutron star-black hole limit $\rho_{nucleon}=\rho_{BH}$ $R_{ylem}=R_{curv}$ for $M_{ylem}=3.7876\text{x}10^{31}$ kg*/18.938M_{sun}
3.900x10^{-17} 20.768 s*	6.23051682x10^{9}	3.14x10^{-10}	$R_{EC}=2\pi L_{EC}=5.037\text{x}10^{-20}$ $L_{EC}=r_{EC}=8.017\text{x}10^{-21}$	1.6013x10^{8}	4.1854x10^{12} K* 5.91x10^{-11} J*/367.8 MeV*	5.3872x10^{-16} m* 107,570.18 m* 2.1818x10^{11} kg*	Supermembrane modulation for the Ecosmic boson string in spacetime from spacetime $R_{ylem}=R_{curv}$ for $M_{ylem}=4.36\text{x}10^{31}$ kg*/21.783M_{sun}
2.996x10^{-17} 15.957 s*	4.78696x10^{9}	1.85x10^{-10}	3.86997x10^{-20}	1.82690x10^{8}	5.1002x10^{12} K* 7.20x10^{-11} J*/448.2 MeV*	4.42097x10^{-16} m* 118,744.56 m* 1.7905x10^{11} kg*	$R_{Hawking}=R_e/2\pi$ Ess modulation Neutron degeneracy $R_{ylem}=R_{curv}$ for $M_{ylem}=4.81\text{x}10^{31}$ kg*/24.05M_{sun}
1.093x10^{-17} 5.821 s*	1.74643077x10^{9}	2.47x10^{-11}	$R_{RMP}=1.411884763\text{x}10^{-20}$	3.0246x10^{8}	1.0865x10^{13} K* 1.53x10^{-10} J*/954.8 MeV*	2.0753x10^{-16} m* 173,315.85 m* 8.4050x10^{10} kg*	Supermembrane modulation for the dark matter agent RMP in radius $R_{RMP}=\sqrt[3]{\{e^*.dt_{ss}/d_{fps}\vert_{resonance}/2\pi^2\}}$ $=\sqrt[3]{\{(e^*/2\pi^2)/(9\text{x}10^{60})\}}$ $Y^2M^2C^2$ quark geometric template for lefthanded ylemic neutron boson as precursor for fermionic Higgs Boson template Higgs boson string maximum in spacetime from spacetime $R_{ylem}=R_{curv}$ for $M_{ylem}=7.02\text{x}10^{31}$ kg*/35.096M_{sun}
8.264x10^{-18} 4.401 s*	1.320239x10^{9}	1.41x10^{-11}	1.0673343x10^{-20}	3.4787x10^{8}	1.340124x10^{13} K* 1.53x10^{-10} J*/954.8 MeV*	1.6825x10^{-16} m* 192,484.62 m* 6.8141x10^{10} kg*	For neutron degeneracy in the diameter of a protonic nucleus $\rho_{nucleon}=Y^3m_cR_e$ $R_{ylem}=R_{curv}$ for $M_{ylem}=7.7956\text{x}10^{31}$ kg*/38.978M_{sun}
5.523x10^{-18} 2.941 s*	8.82440084x10^{8}	6.30x10^{-12}	$R_{Higgs}=2\pi L_{Higgs}=7.134\text{x}10^{-21}$ $L_{Higgs}=r_{Higgs}=1.135\text{x}10^{-21}$	4.2550x10^{8}	1.8129x10^{13} K* 2.56x10^{-10} J*/1.59 GeV*	1.2437x10^{-16} m* 223,877.44 m* 5.0372x10^{10} kg*	Supermembrane modulation for the Higgs boson string minimum in spacetime from spacetime

							$R_{ylem}=R_{curv}$ for $M_{ylem}=9.07\times10^{31}$ kg*/45.335M_{sun}
3.540×10^{-18} 1.885 s*	5.65566×10^{8}	2.59×10^{-12}	4.572262×10^{-21}	5.3150×10^{8}	2.530882×10^{13} K* 3.57×10^{-10} J*/2.22 GeV*	8.9090×10^{-17} m* 264,520.60 m* 3.6081×10^{10} kg*	For neutron degeneracy in the radial size of a protonic nucleus $\rho_{nucleon}=8m_c3R_e^3$ $R_{ylem}=R_{curv}$ for $M_{ylem}=1.07131\times10^{32}$ kg*/53.565M_{sun}
9.066×10^{-19} 0.4828 s*	1.44846837×10^{8}	1.70×10^{-13}	$R_{Higgs}=2\pi L_{Higgs}=1.171\times10^{-21}$ $L_{Higgs}=r_{Higgs}=1.864\times10^{-22}$	1.0502×10^{9}	7.0300×10^{13} K* 9.92×10^{-10} J*/6.18 GeV*	3.2074×10^{-17} m* 440,860.38 m* 1.2990×10^{10} kg*	Supermembrane modulation for the Higgs boson string maximum in spacetime from spacetime $R_{ylem}=R_{curv}$ for $M_{ylem}=1.79\times10^{32}$ kg*/89.274M_{sun}
5.165×10^{-19} 0.27505 s*	8.251498×10^{7}	5.50×10^{-14}	6.670843×10^{-22}	1.3915×10^{9}	1.072099×10^{14} K* 1.51×10^{-9} J*/9.42 GeV*	2.1031×10^{-17} m* 544,428.68 m* 8.5177×10^{9} kg*	For neutron degeneracy in the charge radius of a proton $\rho_{nucleon}=8Y^3m_cR_e^3$ = Quark star limit $R_{ylem}=R_{curv}$ for $M_{ylem}=2.20494\times10^{32}$ kg*/110.25M_{sun}
4.917×10^{-19} 0.2618 s*	7.85497×10^{7}	4.99×10^{-14}	6.350273×10^{-22}	1.4262×10^{9}	1.11243×10^{14} K* 1.57×10^{-9} J*/9.78 GeV*	2.0269×10^{-17} m* 554,574.32 m* 8.2089×10^{9} kg*	$R_{Hawking}=\alpha R_e$ = Inverse Compton radius $R_{ylem}=R_{curv}$ for $M_{ylem}=2.25\times10^{32}$ kg*/112.30M_{sun}
4.864×10^{-19} 0.2591 s*	7.77175644×10^{7}	7.77×10^{-15}	$2\pi\lambda_{ps}=6.283\times10^{-22}$	1.4338×10^{9}	1.1214×10^{14} K* 1.58×10^{-9} J*/9.85 GeV*	2.0107×10^{-17} m* 556,805.71 m* 8.1435×10^{9} kg*	Supermembrane modulation for the radius of the QBBS boson string in spacetime from spacetime $R_{ylem}=R_{curv}$ for $M_{ylem}=2.26\times10^{32}$ kg*/112.75M_{sun}
7.7422×10^{-20} 0.04123 s*	1.23694994×10^{7}	1.24×10^{-15}	$\lambda_{ps}=10^{-22}$	3.3594×10^{9}	4.4501×10^{14} K* 6.28×10^{-9} J*/39.11 GeV*	5.0668×10^{-18} m* 1.1092×10^{6} m* 2.0520×10^{9} kg*	Supermembrane modulation for the wavelength of the QBBS boson string in spacetime as timespace $R_{ylem}=R_{curv}$ for $M_{ylem}=4.49\times10^{32}$ kg*/224.61M_{sun}
1.340×10^{-20} 1/140 =0.00714 s*	$R_{EW}=2.141143\times10^{6}$ Dark matter universe is illuminated as the EMI light path intersects the dark matter haloed ylemic universe	3.71×10^{-17}	1.730986×10^{-23} Ylemic radius shrinks as the radial universe expands with the separation of the short range nuclear weakon	8.6382×10^{9}	1.65825×10^{15} K* 2.34×10^{-8} J*/145.7 GeV*	1.3597×10^{-18} m* 2.14115×10^{6} m* 5.5069×10^{8} kg*	Electroweak Unification $T_{EW}=E/k_B=2\times10^{15}$ K* (146-251)GeV* for $\{W^-+W^++Z^o\}$ R_{ylem} = R(n) as size of the universe

			interaction from the long range electromagnetic interaction				Dark matter halo defined as a quark-lepton geometric kernel-ring structure crystallizing the ylem neutrons from the Higgs Boson and RMP template $R_{ylem}=R_{curv}$ for $M_{ylem}=8.67\times10^{32}$ kg*/433.58M_{sun}
1.233×10^{-20} 0.00656 s*	1.96922430×10^{6}	3.13×10^{-17}	$\lambda_{ps}/2\pi=1.592\times10^{-22}$	9.0073×10^{9}	1.7657×10^{15} K* 2.49×10^{-8} J*/155.2 GeV*	1.2770×10^{-18} m* 2.2094×10^{6} m* 5.1718×10^{8} kg*	Supermembrane modulation for modulated wavelength of the QBBS boson string in spacetime from timespace $R_{ylem}=R_{curv}$ for $M_{ylem}=8.95\times10^{32}$ kg*/447.40M_{sun}
6.613×10^{-21} 0.00352 s*	1.0564789×10^{6}	9.02×10^{-18}	8.541000×10^{-24}	1.2297×10^{10}	2.8167×10^{15} K* 3.97×10^{-8} J*/247.5 GeV*	8.0050×10^{-19} m* 2.7906×10^{6} m* 3.2420×10^{8} kg*	Supermembrane modulation for the Higgs boson string maximum in spacetime from timespace $R_{ylem}=R_{curv}$ for $M_{ylem}=1.13\times10^{33}$ kg*/565.10M_{sun}
1.085×10^{-21} 5.781×10^{-4}	173,420.38	2.43×10^{-19}	1.40200×10^{-24}	3.0353×10^{10}	1.0922×10^{16} K* 1.54×10^{-7} J*/959.8 GeV*	2.0644×10^{-19} m* 5.4951×10^{6} m* 8.3608×10^{7} kg*	Supermembrane modulation for the Higgs boson string minimum in spacetime from timespace $R_{ylem}=R_{curv}$ for $M_{ylem}=2.23\times10^{33}$ kg*/1112.75M_{sun}
6.958×10^{-22} 3.706×10^{-4}	111,173.6	9.99×10^{-20}	8.98772×10^{-25}	3.791×10^{10}	1.52452×10^{16} K* 2.15×10^{-7} J*/1.338 TeV*	1.4790×10^{-19} m* 6.4921×10^{6} m* 5.9898×10^{7} kg*	$R_{Hawking}=\alpha^2R_e$ = Inverse 1st Bohr radius for ylemic template for atomic structure as micro Hawking black hole to manifest at $R_{Hawking}/\alpha^4=9.798883\times10^{-7}$ m* $R_{ylem}=R_{curv}$ for $M_{ylem}=2.63\times10^{33}$ kg*/1314.65M_{sun}
1.537×10^{-22} 8.184×10^{-5}	24,553.46	4.87×10^{-21}	1.9850×10^{-25}	8.0666×10^{10}	4.7321×10^{16} K* 6.68×10^{-7} J*/4.158 TeV*	4.7648×10^{-20} m* 1.1438×10^{7} m* 1.9298×10^{7} kg*	Supermembrane modulation for the Ecosmic boson string in spacetime from timespace $R_{ylem}=R_{curv}$ for $M_{ylem}=4.63\times10^{33}$ kg*/2316.20M_{sun}
3.562×10^{-27} 1.897×10^{-9}	$R_{BU}=0.569092$ universe is 1.1382 meters across encompassed by a ylem dark matter halo of radius 6.2584×10^{8} m* in the inflaton EMMI universe	2.62×10^{-30}	4.60077×10^{-30} Ylemic universe is manifested in the primordial Hawking micro black hole defining the dark matter ylemic halo	1.676×10^{12} 3.515×10^{-25} J* 2.19×10^{-6} eV*	$T_{ps}=1.4167\times10^{20}$ K* 0.002 J*/12,449.8 TeV*	1.59155×10^{-23} m* 6.2584×10^{8} m* 6445.78 kg*	Bosonic temperature unification $T(n)=\sqrt[4]{\{H_o{}^3M_o/1100\pi^2\sigma\}.(n+1)^2/n^3}$ $=\sqrt[4]{18.2(n+1)^2/n^3}=T_{ps}=1.4167\times10^{20}$ K* $R_{ylem}=R_{curv}$ for $M_{ylem}=2.53\times10^{35}$ kg*/126,732.0M_{sun}

1.394×10^{-27} 7.422×10^{-10}	0.22267	4.01×10^{-31}	1.80019×10^{-30}	2.6786×10^{13} 8.98×10^{-25} J* 5.59×10^{-6} eV*	2.8634×10^{20} K*	7.8744×10^{-24} m* 8.8974×10^{8} m* 3189.14 kg*	$R_{Hawking}=\alpha^4R_e$ = False Higgs Vacuum limited by wormhole radius $r_{ps}=\lambda_{ps}/2\pi$ $R_{ylem}=R_{curv}$ for $M_{ylem}=3.60\times10^{35}$ kg*/180,172.4M_{sun}
5.114×10^{-28} 2.723×10^{-10}	0.0817	5.40×10^{-32}	6.60496×10^{-31}	4.4221×10^{13} 2.4480×10^{-24} J* 1.52×10^{-5} eV*	6.0739×10^{20} K*	-	Supermembrane modulation for the XL-boson string for quark-lepton differentiation in spacetime from timespace
3.570×10^{-29} 1.901×10^{-11}	5.704×10^{-3}	2.63×10^{-34}	4.61134×10^{-32}	1.6736×10^{14} 3.5063×10^{-23} J* 2.18×10^{-4} eV*	4.4720×10^{21} K*	-	Supermembrane modulation for the minimum monopole scale in spacetime from timespace on a characteristic star globular cluster scale
1.190×10^{-30} 6.337×10^{-13}	1.9012×10^{-4}	2.92×10^{-37}	1.5370×10^{-33}	9.1671×10^{14} 1.0520×10^{-21} J* 6.55×10^{-3} eV*	5.7328×10^{22} K*	-	Supermembrane modulation for the maximum monopole scale in spacetime from timespace on a characteristic star globular cluster scale
$n_{ps}=t_{ps}=f_{ss}\leftrightarrow f_{ps}=t_{ss}$	Supermembrane modulation inversion	3.3×10^{-31} = $1/3\times10^{30}$					**$n_{ps}=t_{ps}=f_{ss}\leftrightarrow f_{ps}=t_{ss}=1/n_{ps}$**
3.333×10^{-31} $t_{ps}^2/t_{ALGO}=t_{ps}/H_o=1.775\times10^{-13}$	$R_{ALGO}=2\pi L_{ALGO}=5.32558484\times10^{-5}$ $L_{ALGO}=r_{ALGO}=8.47593\times10^{-6}$ Universe the size of smallest life bio-organisms; cellular complex 0.2 picoseconds	3.51×10^{20}	6.587377×10^{24}	1.732×10^{15} 3.755×10^{-21} J* 0.02338 eV*	1.4889886×10^{23} K*	-	$n=H_ot_{ps}^2/n_{ps}=ct_{ps}^2/\lambda_{ps}=t_{ps}=1/f_{ps}=f_{ss}$ mass eigen frequency Image of 1st Logos mathimatia definition
1.017×10^{-31} 5.414×10^{-14}	1.6241×10^{-5}	3.26×10^{19}	2.0089×10^{24}	3.1365×10^{15} 1.2315×10^{-20} J* 0.0766 eV*	3.6282×10^{23} K*	-	Supermembrane modulation for the Planck length in spacetime from timespace on a characteristic galactic core scale
8.687×10^{-33} 4.626×10^{-15}	1.3879×10^{-6}	2.38×10^{17}	1.7168×10^{23}	1.0729×10^{16} 1.441×10^{-19} J* 897.02 eV*	2.2954×10^{24} K*	-	Supermembrane modulation for the Planck length bounce in spacetime from timespace on a characteristic galaxy scale
5.581×10^{-36} $t_{ps}^2/t_{OPL}=2.972\times10^{-18}$	$R_{OPL}=2\pi L_{OPL}=8.916\times10^{-10}$ $L_{OPL}=r_{OPL}=1.419\times10^{-10}$ Universe the size of an atom	9.83×10^{10}	1.1028646×10^{20}	4.23×10^{17} 2.243×10^{-16} J* 1.396 keV*	5.6883×10^{26} K*	-	Planck Oscillation in timespace manifests in atomic complexity

4.768×10^{-37} t_{ps}^2/t_{PL} $=2.539\times10^{-19}$	$R_{PL}=2\pi L_{PL}=7.617\times10^{-11}$ $L_{PL}=r_{PL}=1.212\times10^{-11}$ Universe the size of the Bohr atom scale $\lambda_{bohr1}=R_e/\alpha^2$	7.18×10^{8}	9.42184766×10^{18}	1.45×10^{18} 2.626×10^{-15} J* 16.34 keV*	3.5997×10^{27} K*	-	Planck length of timespace manifests as atomic scale in spacetime
1.454×10^{-37} 7.743×10^{-20}	2.32299×10^{-11}	6.67×10^{6}	2.873422×10^{18}	2.6225×10^{18} 8.610×10^{-15} J* 53.59 keV*	8.7719×10^{27} K*	-	Beginning of Inversion Modulation for the Algo wavelength in spacetime from timespace
4.073×10^{-38} h/E $=2.169\times10^{-20}$	$R_{MO}=2\pi L_{MO}=6.507\times10^{-12}$ $L_{MO}=r_{MO}=1.036\times10^{-12}$ Universe the size of the wave matter de Broglie quantum scale $\lambda_{dB}=h/mc$	5.24×10^{6}	8.0488332×10^{17}	4.95×10^{18} 3.074×10^{-14} J* 191.33 keV*	2.2781×10^{28} K*	-	Monopole $[30ec]_{min}$ in timespace manifests in quantum mechanics in spacetime
1.357×10^{-39} t_{ps}^2/t_{MO} $=7.229\times10^{-22}$	$R_{MO}=2\pi L_{MO}=2.169\times10^{-13}$ $L_{MO}=r_{MO}=3.451\times10^{-14}$ Universe the size of the Compton quantum scale $R_{compton}=$ $R_e/\alpha=h/2\pi mc$	5819.4	2.6829444×10^{16}	2.71×10^{19} 9.221×10^{-13} J* 5.74 MeV*	2.9213×10^{29} K*	-	Monopole $[ec]_{max}$ in timespace manifests in quantum mechanics in spacetime
1.300×10^{-40} 6.922×10^{-23}	$4\pi^2r^*=2.07650\times10^{-14}$ Monopolar upper quantum bound	$8\pi^3\lambda^*r^*$ 53.335	$2\pi\lambda^*=2.568524393\times10^{15}$ Monopolar upper classical bound	8.77×10^{19} 9.632×10^{-12} J* 59.96 MeV*	1.6968×10^{30} K*	-	Dirac string modular R_e upper bound
1.092×10^{-40} 5.818×10^{-23}	$2\pi R_e=1.74533\times10^{-14}$	$4\pi^2R_ER_e$ 37.680	$2\pi R_E=2.158884301\times10^{15}$	9.57×10^{19} 1.146×10^{-11} J* 71.33 MeV*	1.9330×10^{30} K*	-	
2.069×10^{-41} 1.102×10^{-23}	$2\pi r^*=3.30485\times10^{-15}$ Monopolar mean quantum bound	$2\pi r^*\lambda^*$ MQB= 1.351	$\lambda^*=4.087933536\times10^{14}$ Monopolar mean classical bound	2.20×10^{20} 6.052×10^{-11} J* 376.71 MeV*	6.7340×10^{30} K*	-	Dirac string modular R^e mean
1.739×10^{-41} 9.259×10^{-24}	$R_e^*=R_e=10^{10}\lambda_{ps}/360$	1	$R_E^*=3.6\times10^{14}$ as $360\text{x}R_e\times10^{12}=1/R_E^*$	2.40×10^{20} 7.200×10^{-11} J* 448.19 MeV*	7.6713×10^{30} K*	-	
1.739×10^{-41} 9.259×10^{-24}	$R_e=2.77777\times10^{-15}$ Electron charge radius for electron degeneracy	R_ER_e 0.9544	$R_E=3.43597108\times10^{14}$	2.40×10^{20} 7.200×10^{-11} J* 448.19 MeV*	7.6713×10^{30} K*	-	
1.075×10^{-41} 5.723×10^{-24}	$XR_e=1.716761\times10^{-15}$ $=\sqrt[3]{A}$ for $A=5=(2X+1)^2$ Atomic radius for nucleus $XR_e/MQB=1.2707$ $\sqrt[3]{A}$ with A the atomic number	0.36456	2.1235470×10^{14}	3.05×10^{20} 1.165×10^{-10} J* 725.19 MeV*	1.1006×10^{31} K*	-	
8.693×10^{-42} 4.630×10^{-24}	$½R_e=1.38885\times10^{-15}$ $½\{X+½X\}R_e=¾XRe=1.2875\times10^{-15}$ $\sim XR_e/MQB$	0.2386 $\sim\sqrt[3]{X}$	1.7179379×10^{14}	3.39×10^{20} 1.440×10^{-10} J* 896.41 MeV*	1.2902×10^{31} K*	-	

$5.373x10^{-42}$ $2.861x10^{-24}$	$½XR_e=8.583806x10^{-16}$ Proton charge radius for neutron degeneracy	0.0911	$1.06177383x10^{14}$	$4.31x10^{20}$ $2.330x10^{-10}$ J* 1.450 GeV*	$1.8508x10^{31}$ K*	-	
$3.292x10^{-42}$ $1.753x10^{-24}$	$r^*=R_eR^*/R_E=5.2598x10^{-16}$ Monopolar lower quantum bound	r^*R^* 0.0342	$R^*=\lambda^*/2\pi$ $=6.506148293x10^{13}$ Monopolar lower classical bound	$5.51x10^{20}$ $3.802x10^{-10}$ J* 2.367 GeV*	$2.6725x10^{31}$ K*	-	Dirac string modular R_e lower bound
$2.767x10^{-42}$ $1.474x10^{-24}$	$R_e/2\pi=$ $R_e/2\pi=4.42097x10^{-16}$	$R_ER_e/4\pi^2$ 0.0242	$R_E/2\pi=5.468517817x10^{13}$	$6.01x10^{20}$ $4.524x10^{-10}$ J* 2.816 GeV*	$3.0445x10^{31}$ K*	-	
$1.746x10^{-44}$ $9.300x10^{-27}$	$\lambda_f=(R_F/R_E)R_e=2.789990x10^{-18}$ $r_{f'}=4.4404070x10^{-19}$	$9.63x10^{-7}$	$R_F=\sqrt[3]{F}(\lambda_{weyl}/2\pi)$ $=3.45107750x10^{11}$ 1150.36 s*	$7.57x10^{21}$ $(7.168-1.141)x10^{-8}$ J* (446.23-71.02) GeV*	$1.3598x10^{33}$ K*	-	Higgs Boson $71.020Y^{np}=122.49$ GeV* 122.19 GeV RMP -dark matter deficit=122.49/123.57 =0.9913
$1.731x10^{-44}$ $9.220x10^{-27}$	$2.7659325x10^{-18}$ $4.4021183x10^{-19}$	$9.46x10^{-7}$	$3.42132x10^{11}$ 1140.44 s*	7.60x1021 $(7.231-1.151)x10^{-8}$ J* (450.11-71.64) GeV*	$1.3687x10^{33}$ K*	-	Higgs Boson $71.64Y^{np}=123.56$ GeV* 123.25 GeV Mean Δ time ½(F-G)=9.92 s*
$1.716x10^{-44}$ $9.140x10^{-27}$	$\lambda_g=(R_G/R_E)R_e=2.741872x10^{-18}$ $r_g=4.36382482x10^{-19}$	$9.30x10^{-7}$	$R_G=\sqrt[3]{G}(\lambda_{weyl}/2\pi)$ $=3.39155801x10^{11}$ 1130.52 s*	$7.63x10^{21}$ $(7.294-1.161)x10^{-8}$ J* (454.06-72.266) GeV*	$1.3776x10^{33}$ K*	-	Higgs Boson $72.266Y^{np}=124.64$ GeV* 124.33 GeV Higgs neutrino: $m_{\nu H}=m_er_{ps}\{R_E/R_F-R_E/R_G\}/R_e=9.305x10^{-38}$ kg* 0.052 eV* neutrino mass induction 2.969-3.021 eV*
$1.702x10^{-44}$ $9.065x10^{-27}$	$2.719631x10^{-18}$ $4.3284271x10^{-19}$	$9.14x10^{-7}$	$3.364047x10^{11}$ 1121.35 s*	$7.665x10^{21}$ $(7.354-1.170)x10^{-8}$ J* (457.77-72.857) GeV*	$1.3861x10^{33}$ K*	-	125.66 GeV* 125.35 GeV 1 eV*= 0.997540464 eV_{SI} 1 s* = 0.999022562 s_{SI} 1 kg*=0.996260907 kg_{SI}
$1.701x10^{-44}$ $9.0575x10^{-27}$	$2.716941x10^{-18}$ $4.324146x10^{-19}$	$9.06x10^{-7}$	$3.336072x10^{11}$ 1120.24 s*	$7.668x10^{21}$ $(7.361-1.172)10^{-8}$ J* (458.23-72.93) GeV*	$1.3870x10^{33}$ K*	-	Higgs Boson $72.93Y^{np}=125.78$ GeV* 125.48 GeV RMP -dark matter excess=126.95/125.78 =1.0093 Mean Δ time ½(G-F')=10.28 s*
$1.685x10^{-44}$ $8.973x10^{-27}$	$\lambda_{f'}=(R_{F'}/R_E)R_e=2.69200x10^{-18}$ $r_{f'}=4.4404070x10^{-19}$	$8.96x10^{-7}$	$R_{F'}=\sqrt[3]{F'})(\lambda_{weyl}/2\pi)$ $=3.32987275x10^{11}$ 1109.96 s*	$7.70x10^{21}$ $(7.429-1.182)x10^{-8}$ J* (462.47-73.605) GeV*	$1.3966x10^{33}$ K*	-	Higgs Boson $73.605Y^{np}=126.95$ GeV* 126.64 GeV Blueprint for neutron decay: $\lambda_{F'}-2\pi\lambda_{RMP}$ (1109.96-229.82) s* = 880.14 s*/879.28 s
$1.331x10^{-44}$	$2.1264802x10^{-18}$	$5.59x10^{-7}$	$2.6303496x10^{11}$ 876.78 s*	$8.67x10^{21}$	$1.6668x10^{33}$ K*	-	1/(1.351x0.9544)=0.775558

7.088×10^{-27}	Higgs monopolar mean quantum bound from G as dineutron	0.775558		9.405×10^{-8} J* 585.46 GeV*			
3.489×10^{-45} 1.858×10^{-27}	$2\pi\lambda_{RMP}=4\pi^2R_{RMP}=5.57389763\times10^{-19}$	3.84×10^{-8}	$R_{neutrondecay}=6.8946323\times10^{10}$ 229.82 s*	1.69×10^{22} 3.588×10^{-7} J* 2.234 GeV*	4.5500×10^{33} K*	-	Modular RMP perimeter for primordial neutron decay (1109.96-229.82)s*=880.14 s*, 879.28 s 1st particular neutron twin is born from ylem neutron to blueprint primordial neutron decay
9.475×10^{-46} $t_{ps}^2/t_{XL}=5.046\times10^{-28}$	$R_{XL}=2\pi L_{XL}=1.514\times10^{-19}$ $L_{XL}=r_{XL}=2.410\times10^{-20}$	2.84×10^{-9}	1.87274220×10^{10}	3.25×10^{22} 1.321×10^{-6} J* 8.223 TeV*	1.2094×10^{34} K*	-	Image of XL boson string Scale of RMP-photon
5.553×10^{-46} 2.957×10^{-28}	$\lambda_{RMP}=2\pi R_{RMP}=8.87113360\times10^{-20}$	9.73×10^{-10}	1.09731481×10^{10}	4.24×10^{22} 2.255×10^{-6} J* 14.034 TeV*	1.8057×10^{34} K*	-	$\lambda_{RMP}=2\pi R_{RMP}$ dark matter particle 1st wave matter neutron twin is born from ylem neutron in radial manifestation
3.153×10^{-46} $t_{ps}^2/t_{EC}=1.679\times10^{-28}$	$R_{EC}=2\pi L_{EC}=5.037\times10^{-20}$ $L_{EC}=r_{EC}=8.017\times10^{-21}$	3.14×10^{-10}	6.23051682×10^{9}	5.63×10^{22} 3.971×10^{-6} J* 24.717 TeV*	2.7604×10^{34} K*	-	Image of EC boson string Scale of RMP photon
8.837×10^{-47} 4.706×10^{-29}	$R_{RMP}=1.411884763\times10^{-20}$	2.47×10^{-11}	1.74643077×10^{9}	1.06×10^{23} 1.417×10^{-5} J* 88.178 TeV*	7.1661×10^{34} K*	-	$R_{RMP}=\sqrt[3]{\{e^*.dt_{ss}/d_{fps}\|_{resonance}/2\pi^2\}}$ $=\sqrt[3]{\{(e^*/2\pi^2)/(9\times10^{60})\}}$ $Y^2M^2C^2$ quark geometric template for lefthanded ylemic neutron boson as precursor for fermionic Higgs Boson template
4.465×10^{-47} $R_{HC}^2t_{ps}/G_oM_o=2.378\times10^{-29}$	$R_{Higgs}=2\pi L_{Higgs}=7.134\times10^{-21}$ $L_{Higgs}=r_{Higgs}=1.135\times10^{-21}$	6.30×10^{-12}	8.82440084×10^{8}	1.50×10^{23} 2.803×10^{-5} J* 174.51 TeV*	1.1958×10^{35} K*	-	False Higgs Vacuum min in spacetime
7.327×10^{-48} $t_{ps}/\sqrt{\alpha}=3.902\times10^{-30}$	$R_{Higgs}=2\pi L_{Higgs}=1.171\times10^{-21}$ $L_{Higgs}=r_{Higgs}=1.864\times10^{-22}$	1.70×10^{-13}	1.44846837×10^{8}	3.69×10^{23} 1.708×10^{-4} J* 1063.17 TeV*	4.6379×10^{35} K*	-	False Higgs Vacuum max in spacetime
3.933×10^{-48} 2.094×10^{-30}	$2\pi\lambda_{ps}=6.283\times10^{-22}$	4.88×10^{-14}	7.77175644×10^{7}	5.04×10^{23} 3.183×10^{-4} J* 1981.44 TeV*	7.3956×10^{35} K*	-	Modular QBBS wormhole perimeter
$n_{ps}=6.259\times10^{-49}$ $t_{ps}=3.333\times10^{-31}$	$\lambda_{ps}=10^{-22}$	1.24×10^{-15}	1.23694994×10^{7}	1.26×10^{24} 2×10^{-3} J* 12,449.76 TeV*	2.2935×10^{36} K* $T_{ps}=1.4167\times10^{20}$ K*	-	wormhole temperature < universe temperature $T_{ps}=E_{ps}/k_B=1.4167\times10^{20}$ < $T(n_{ps})=$ 2.935177×10^{36} K*

9.962×10^{-50} 5.305×10^{-32}	$r_{ps}=\lambda_{ps}/2\pi=1.592 \times 10^{-23}$	3.14×10^{-17}	1.96922430×10^{6}	3.17×10^{24} 0.01257 J* 78,224.17 TeV*	8.9040×10^{20} K*	-	Modular QBBS wormhole radius
5.346×10^{-50} $\sqrt{\alpha}\, t_{ps}$ = 2.847×10^{-32}	$R_{Higgs}=2\pi L_{Higgs}=8.541 \times 10^{-24}$ $L_{Higgs}=r_{Higgs}=1.359 \times 10^{-24}$	9.02×10^{-18}	1.0564789×10^{6}	4.33×10^{24} 0.02342 J* 1.4576×10^{5} TeV*	$T_H=1.6590 \times 10^{21}$ K*	-	False Higgs Vacuum max in timespace
8.773×10^{-51} $G_o M_o t_{ps}/R_H c^2$ = 4.672×10^{-33}	$R_{Higgs}=2\pi L_{Higgs}=1.402 \times 10^{-24}$ $L_{Higgs}=r_{Higgs}=2.231 \times 10^{-25}$	2.43×10^{-19}	173,420.38	1.07×10^{25} 0.14265 J* 8.8800×10^{5} TeV*	$T_H=1.0105 \times 10^{22}$ K*	-	False Higgs Vacuum min in timespace
1.243×10^{-51} $2\pi R_{EC}/c$ = 6.618×10^{-34}	$R_{EC}=2\pi L_{EC}=1.985 \times 10^{-25}$ $L_{EC}=r_{EC}=3.159 \times 10^{-26}$	4.87×10^{-21}	24,553.46	2.84×10^{25} 0.9925 J* 6.272×10^{6} TeV*	$T_{EC}=7.0304 \times 10^{22}$ K*	-	EC-Boson string $B(0)=(2e/hA)e^{-\alpha n[n+1]}$
4.135×10^{-57} $2\pi R_{XL}/c$ = 2.202×10^{-39}	$R_{XL}=2\pi L_{XL}=6.606 \times 10^{-31}$ $L_{XL}=r_{XL}=1.051 \times 10^{-31}$	4.95×10^{-32}	0.0817	1.56×10^{28} 302,755.07 J* 1.885×10^{12} TeV*	$T_{XL}=2.1446 \times 10^{28}$ K*	-	XL-Boson string
2.886×10^{-58} $2\pi R_{MO}/c$ 1.537×10^{-40}	$R_{MO}=2\pi L_{MO}=4.611 \times 10^{-32}$ $L_{MO}=r_{MO}=7.339 \times 10^{-33}$	2.63×10^{-34}	5.704×10^{-3}	5.89×10^{28} 4.337×10^{6} J* 2.700×10^{13} TeV*	$T_{MO}=3.0721 \times 10^{29}$ K*	-	Monopole $[ec]_{max}$ in timespace manifests in quantum mechanics in spacetime as 't Hooft-Polyakov GUT monopole lower limit
9.621×10^{-60} $2\pi R_{MO}/c$ 5.124×10^{-42}	$R_{MO}=2\pi L_{MO}=1.537 \times 10^{-33}$ $L_{MO}=r_{MO}=2.446 \times 10^{-34}$	2.92×10^{-37}	1.9012×10^{-4}	3.22×10^{29} 1.301×10^{8} J* 8.100×10^{14} TeV*	$T_{MO}=9.2157 \times 10^{30}$ K*	-	Monopole $[30ec]_{min}$ in timespace manifests in quantum mechanics in spacetime as 't Hooft-Polyakov GUT monopole upper limit
8.219×10^{-61} $2\pi R_{PL}/c$ 4.377×10^{-43}	$R_{PL}=2\pi L_{planck}=1.313 \times 10^{-34}$ $L_{planck}=r_{PL}=2.090 \times 10^{-35}$	2.13×10^{-39}	1.6241×10^{-5}	1.10×10^{30} 1.523×10^{9} J* 9.482×10^{15} TeV*	$T_{PL}=1.0788 \times 10^{32}$ K*	-	Planck boson string
7.021×10^{-62} $2\pi e/c^3=\sqrt{\alpha}\, t_{PL}$ = 3.739×10^{-44}	$R_{OPL}=2\pi L_{OPL}=1.122 \times 10^{-35}$ $L_{OPL}=r_{OPL}=\sqrt{\alpha} L_{planck}=1.786 \times 10^{-36}$	1.56×10^{-41}	1.3879×10^{-6}	3.77×10^{30} 1.783×10^{10} J* 1.110×10^{17} TeV*	$T_{OPL}=1.2630 \times 10^{33}$ K*	-	Planck bounce boson string
$n_{ALGO}=H_o t_{ALGO}$ $=H_o n_{ps}$ 1.175×10^{-66} $n_{ps}=H_o t_{ps}=\lambda_{ps}/R_H$ 6.259×10^{-40}	$R_{ALGO}=2\pi L_{ALGO}=1.878 \times 10^{-40}$ $L_{ALGO}=r_{ALGO}=2.989 \times 10^{-41}$	4.36×10^{-51}	2.32299×10^{-11}	9.23×10^{32} 1.065×10^{15} J* 6.629×10^{21} TeV*	$T_{ALGO}=7.5440 \times 10^{37}$ K*	-	First Logos mathimatia definition in timespace to manifest universal life in spacetime wavelength λ_{ps} linearized as radius $R_{ALGO}=2\pi r_{ALGO}$ for QBBS as $r_{ps}=\lambda_{ps}/2\pi$

A general dark energy equation for the kth universe (k=0,1,2,3,...) in terms of the parametrized Milgröm acceleration A(n); comoving recession speed V(n) and scalefactored curvature radius R(n):

G_oM_o is the Gravitational Parameter for the Baryon mass seed; $R_H=c/H_o$ is the second nodal Hubble parameter H_o curvature radius and c is the speed of light

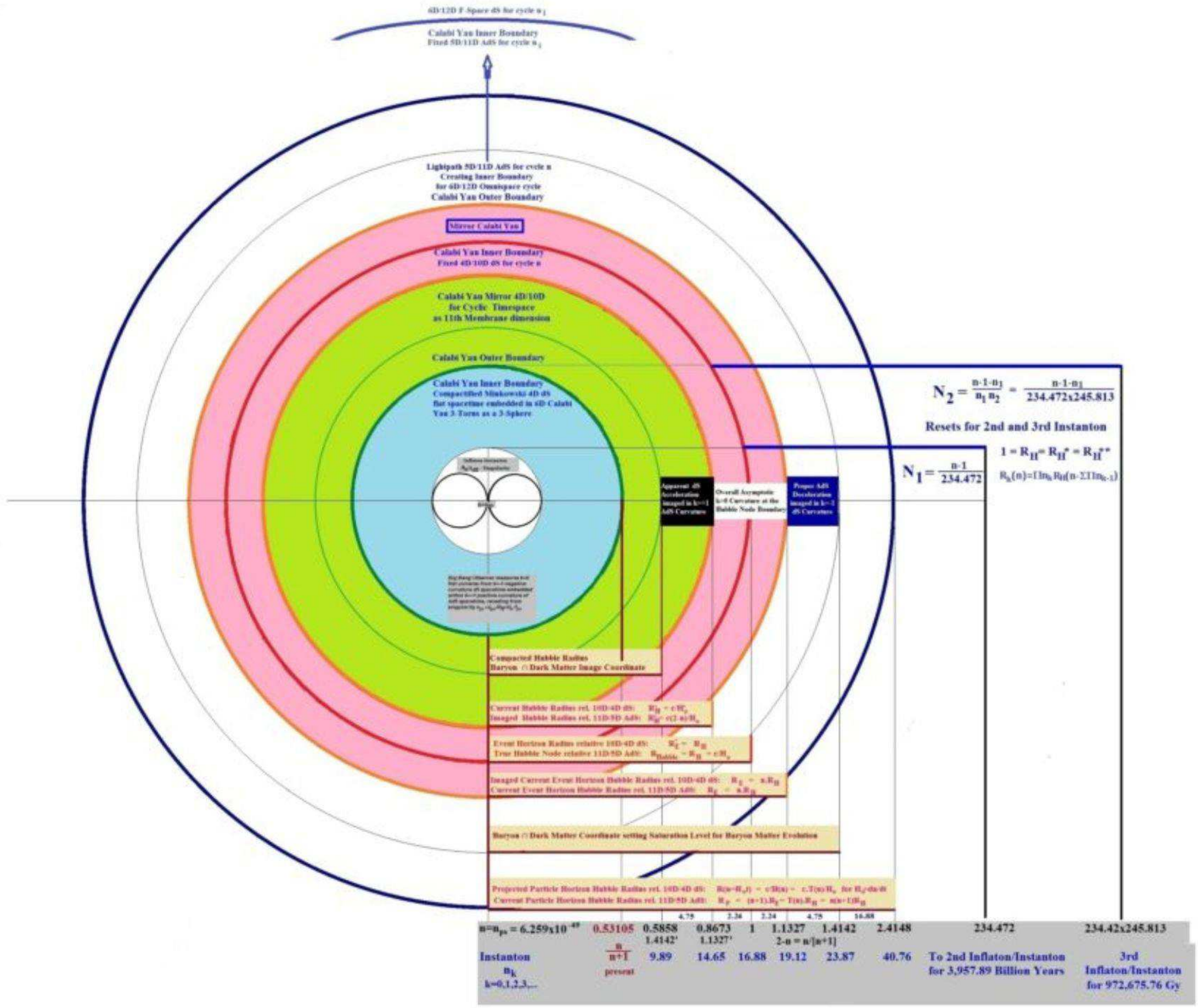
$\Lambda_k(n) = G_oM_o/R_k(n)^2 - 2cH_o(\Pi n_k)^2/\{n-\Sigma\Pi n_{k-1}+\Pi n_k)\}^3$ and where $\Pi n_k = 1 = n_o$ for k=0

$$N_k = \frac{H_o t_k}{\Pi n_k} = \frac{n - \Sigma\Pi n_{k-1}}{\Pi n_k}$$

$R_k(n) = \Pi n_k R_H (n-\Sigma\Pi n_{k-1})/\{n-\Sigma\Pi n_{k-1}+\Pi n_k\} = R_H(n/[n+1]) = n_1R_H(N_1/[N_1+1]) = n_1n_2R_H(N_2/[N_2+1]) = ...$

$V_k(n) = dR_k(n)/dt\ ..... = c\{\Pi n_k\}^2/\{n-\Sigma\Pi n_{k-1}+\Pi n_k\}^2 = c/(n+1)^2 = c/(N_1+1)^2 = c/(N_2+1)^2 = ...$

$A_k(n) = d^2R_k(n)/dt^2\ ..... = -2cH_o(\Pi n_k)^2/(n-\Sigma\Pi n_{k-1}+\Pi n_k)^3 = -2cH_o/(n+1)^3 = -2cH_o/n_1(N_1+1)^3 = -2cH_o/n_1n_2(N_2+1)^3 = ...$

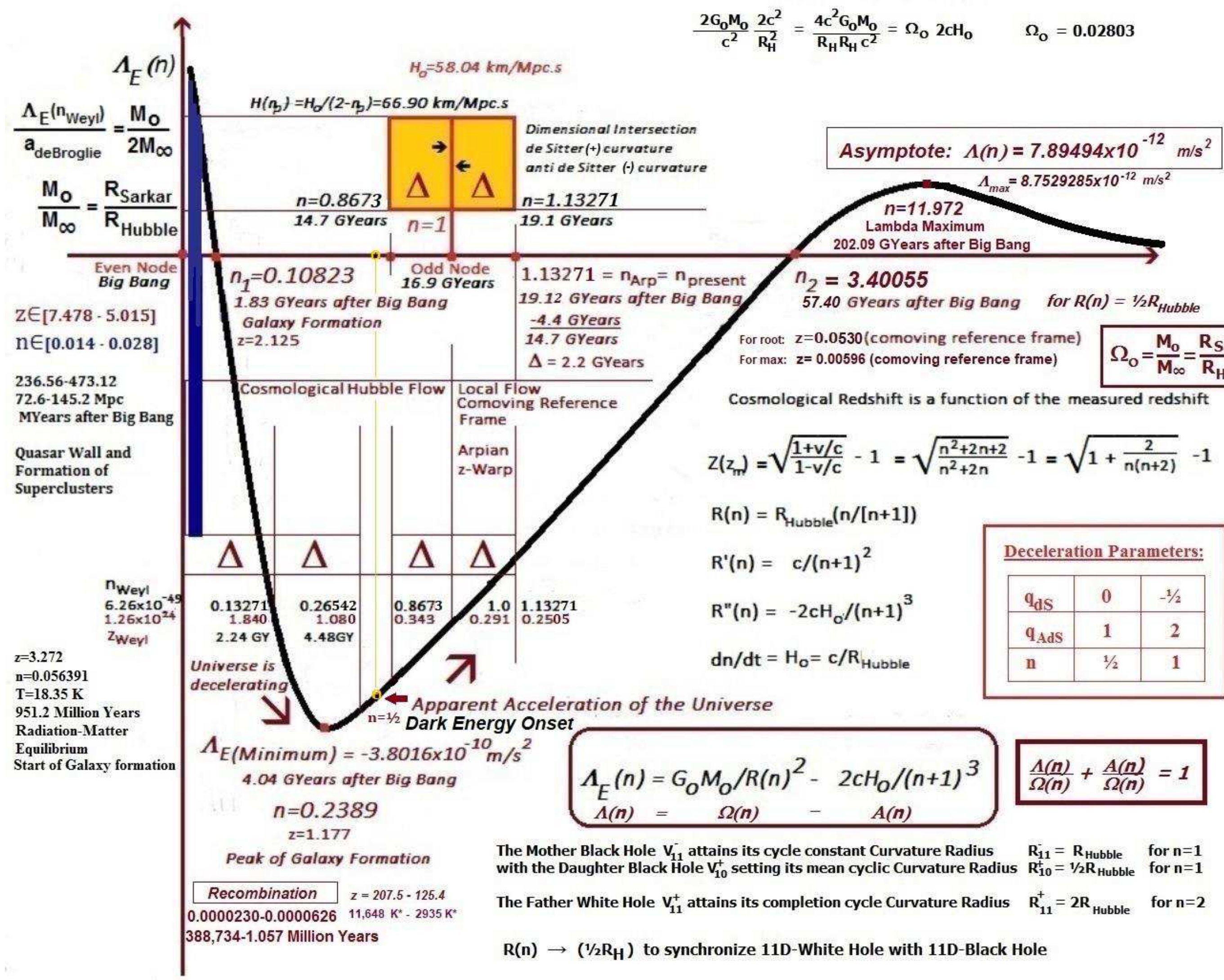


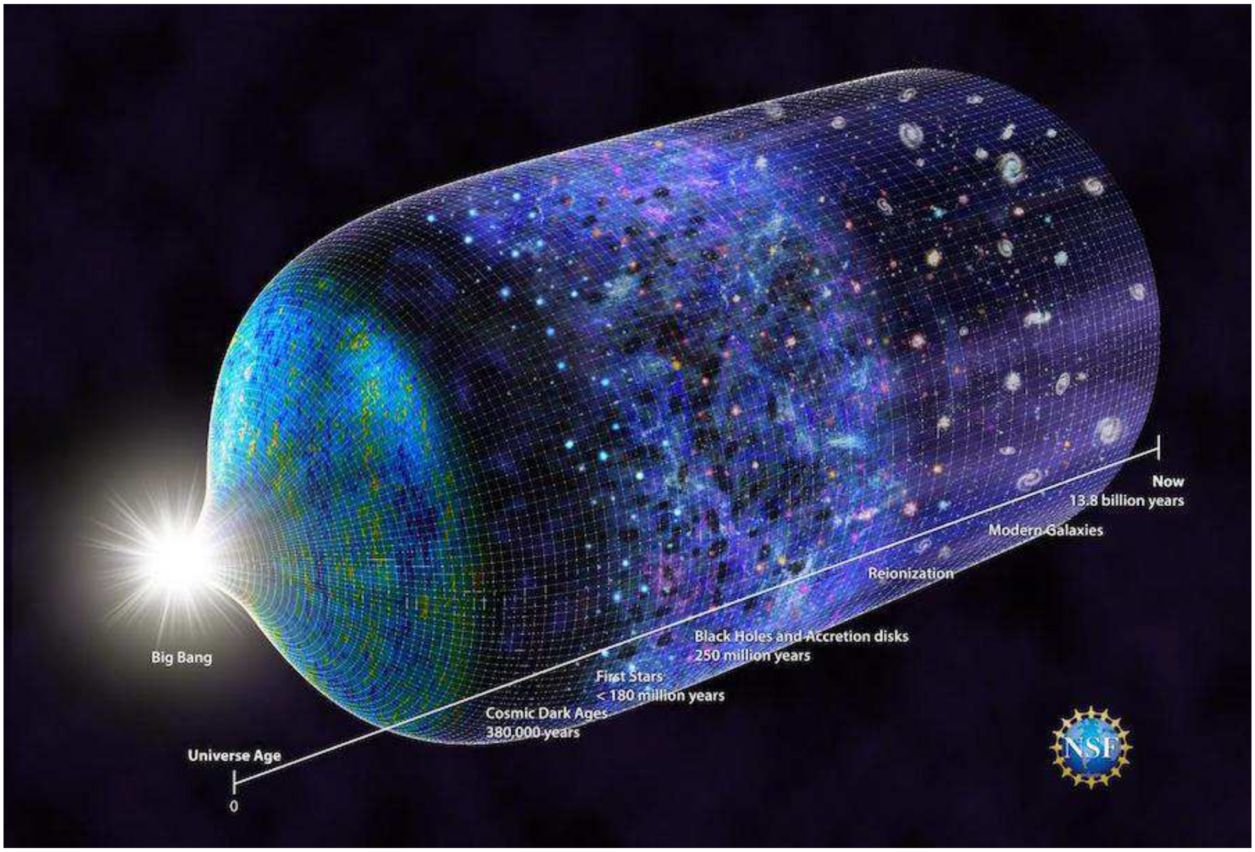
At the instanton t_{ps}, a de Broglie Phase-Inflation defined $r_{max}=a_{dB}/f^2_{ps}$ and a corresponding Phase-Speed $v_{dB}=r_{max}.f_{ps}$.
Those de Broglian parameters constitute the boundary constants for the Guth-Linde inflation and the dynamical behaviour for all generated multiverses as subsets of the omniverse in superspacetime CMF.

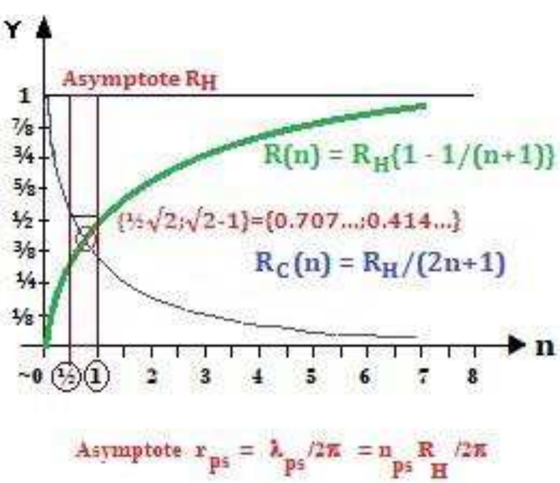
Initially, the de Broglie Acceleration of Inflation specified the overall architecture for the universe in the Sarkar Constant $A_S=\Lambda_E(n_{ps})r_{max}/a_{dB} = G_oM_o/c^2$
The Sarkar Constant calculates as 72.4 Mpc, 2.23541620×10^{24} m or as 236.12 Mlightyears as the bounding gravitational distance/scale parameter.

A Scalar Higgsian Temperature Field derives from the singularity and initialises the consequent evolution of the protocosmos in the manifestation of the bosonic superbranes as macroquantisations of multiverses in quantum relativistic definitions.

The Omega of critical density is specified in acceleration ratio $\Lambda_E(n_{ps})/a_{dB}$, which is $G_oM_o/c^2r_{max} = 0.01401506 = \frac{1}{2}M_o/M_\infty = \frac{1}{2}\Omega_o = q_o$ (Deceleration Parameter).







$R(n) = \frac{1}{2} R_H$ for $n=1$ $\Rightarrow R_H$ for $n \to \infty$

Onset of Dark Energy for nodal completion of electromagnetic universe $n=1$ $H_o = c/R_H$

$R_C(n) = \frac{1}{2}R_H$ for $n=\frac{1}{2} \Rightarrow 0$ for $n \to \infty$

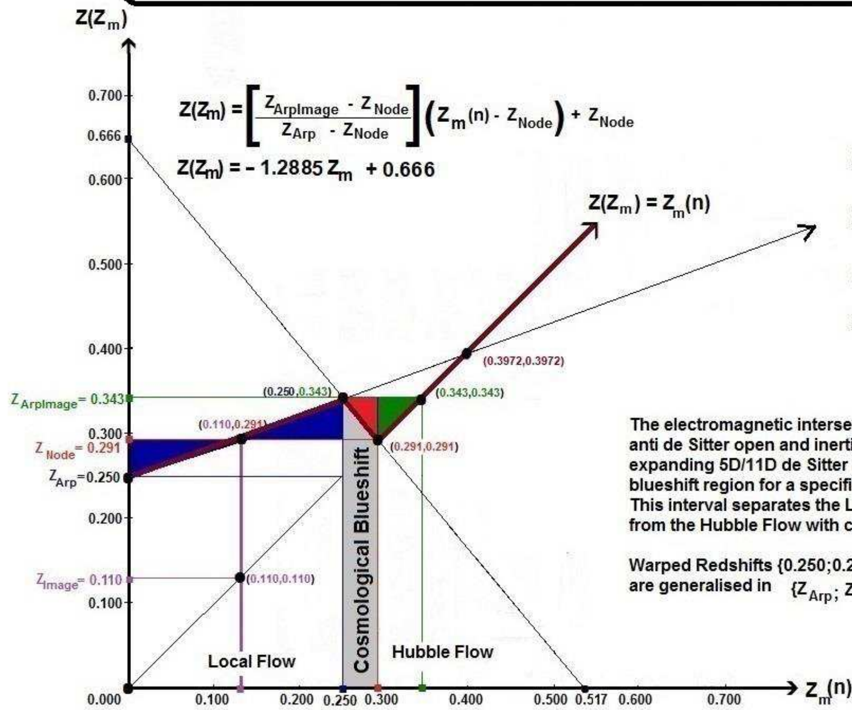
$R_C(n) = cdt/dn.dn/dT = (c/H_o)(1/(2n+1))$

$T(n) = n(n+1) = n^2 + n$

$T'(n) = dT(n)/dn = 2n+1$

$dT(n,t)/dt = T'(t) = T'(n).dn/dt = H_o\{2n+1\}$

The Big Bang Observer with the Cosmic Wave Surfer and the Hubble Multiverse



$$Z(Z_m) = \left[\frac{Z_{ArpImage} - Z_{Arp}}{Z_{Arp}}\right] Z_m(n) + Z_{Arp}$$

$$Z(Z_m) = 0.37045 Z_m + 0.25045$$

$Z(Z_m)=0.37045\,Z_m + 0.25045 = Z_{Node} = 0.291$ for

$Z(\text{Image}) = Z_m = (0.291 - 0.25045)/0.37045 = 0.10943$

The electromagnetic intersection between the asymptotically expanding inertial 5D/11D anti de Sitter open and inertial universe of negative curvature and the lightspeed expanding 5D/11D de Sitter closed universe of positive curvature forms a cosmological blueshift region for a specified redshift interval.
This interval separates the Local Flow for measured lower cosmological redshifts z<0.25045 from the Hubble Flow with cosmological redshifts z>0.291

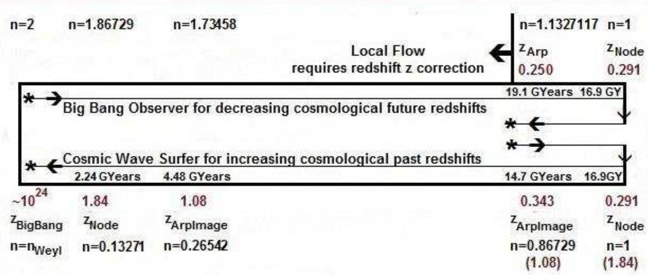
Warped Redshifts {0.250;0.291;0.343} are imaged in {1.26x10^{24};1.840;1.080} as shown and are generalised in {Z_{Arp}; Z_{Node}; $Z_{ArpImage}$}

The intersection of the Local Flow cosmological redshift correction line for low redshifts z with the nodal redshift constant line determines a measured redshift z(m) as z(m)=z(image)=0.109 as a critical value for the Hubble Flow for high redshifts.
For this value of z then particular unexpected cosmological phenomena, such as quasar redshift anomalies apparently coupling quasar sources with galactic hosts and aberrant spectra and light curves for gamma ray bursters and supernovae can be observed by Terran stargazers unawares about the multivalued redshift regions and their mirroring properties as indicated.

$H_o = dn/dt = c/R_{Hubble} = n/t = n_{BB}/t_{BB} = n_{Weyl} f_{Weyl} = \lambda_{Weyl} f_{Weyl}/R_{Hubble}$

$H_{omax} = f_{Weyl} = 3\times10^{30}$ Hz $\quad H(n_{present}) = H_o/(2-n_{present}) = 66.9$ km/Mpcs $\quad H_{omin} = 58.04$ km/Mpcs $= 1.877...\times10^{-18}$ Hz

The Big Bang observer, say an Earth astronomer perceives and measures the receding event horizon of the Hubble node in witnessing hisher future with increasing cosmological redshifts z from left to right.
The Big Bang observer remains stationary relative to the Cosmic Wave surfer and measures the latter in receding from herhis recessional velocity or descreasing speed due to gravitational mass attraction



The Cosmic surfer rides the wavefront of the expanding universe in a comoving reference frame of the Arpian velocity defining the Arpian cosmological redshift.
Shehe so observes the cosmic evolution as a witness for the past in the increasing of the warping effect towards the Big Bang and where the 11D/5D closed de Sitter universe coincided with the 10D/5D open anti de Sitter universe.
The increase of the redshifts then proceeds from the right to the left in mirroring the timearrow of the Big Bang observer.

The dynamic node moves the Hubble event horizon along the basic n-interval [0-n_{BB} ,1] to superpose the 11D Radius $R_{11}(n)=nR_{Hubble}=R_{Hubble}+\Delta$ onto the oscillating multiverse bouncing between even nodes of the Big Bang observer {0-n_{BB}, 2, 4, 6,...} and the odd nodes of the mirrored and imaged Cosmic wave surfer {1, 3, 5, 7,...}.
The unitary interval so defines the curvature in $R_{10}(n)=R_{Hubble}\{n/[n+1]\}$ asymptotically and as a function of the expansion parameter $\boxed{a = R_{10}(n)/R_{Hubble} = n/[n+1] = 1 - 1/[n+1]}$

Recessional Velocity: $v'/c = 1/(n+1)^2$ in $1+z = \sqrt{\{(1+[v'/c])/(1-[v'/c])\}} = \sqrt{\{1+2/(n[n+2])\}}$ for $n = \sqrt{\{c/v'\}} - 1 = \sqrt{\{1+2/(z[z+2])\}} - 1$

$v'/c = 1/(n_p+1)^2 = 0.219855$ for $Z_{arp} = 0.25045$ for a present z=0 redshift image for $n_p = 1.132712 = 1+0.132712$ and $2-1.132712 = 0.86728$ (image)

Critical Redshifts:

$Z_{o/arp} = 0.00000$ for $n_p = 1.132712$ and imaged in the limiting $Z_{n\Delta} = 0.34323$ for the Local Flow LF

$Z_{M231} = 0.04147$ for a LF-n=3.91058 for a redshift correction $Z_{M231}(0.04147) = 0.37045(0.04147) + 0.25045 = 0.26581$ for a n = 1.07864 and n_p - 1.07864 = 0.05407 as 912.5 Million ly

$Z_{LF} = 0.10943$ for n= 2.022956 for a 'Local Flow' redshift correction $Z_{LF}(0.10943) = 0.37045(0.10943) + 0.25045 = 0.29099 = Z_n$ at the node for a n = 1 = n_p - 0.132712; 2.24 Gly from n_p

$Z_{Q3C273} = 0.1583$ with v'/c = 0.1583 and for a n= 1.5134 for a redshift correction $Z_{Q3C273}(0.1583) = 0.37045(0.1583) + 0.25045 = 0.30909$ for a n = 0.94993 = 1 - 0.05007

The position of Blazar Q3C273 is so 1.132712-0.94993 = 0.18278 from the n_p cycle coordinate at a displacement of 2.9202×10^{25} m* or 3.0846 Billion light years from n_p
The nodal mirror of the Inflaton defines a redshift displacement of 2.24 Billion years from the present observer for multiple redshift values for ylemic objects within the Local Flow.

$Z_{arp}(0.25045) = 0.37045(0.25045) + 0.25045 = 0.34323 = Z_{n\Delta}$ for a n = 0.867289 for n_p - 0.867289 = 0.265422 and a distance of 4.479 Billion light years from n_p imaging $Z_{n\Delta}$

Z_n = 0.29099 for n=1.000000 in Hubble Flow for Z_n (0.29099) = 0.29099 for n_p - 1.0000 = 0.132711 and a distance of 2.240 Billion light years from n_p

$Z_{n\Delta}$ = 0.34323 for n=0.867289 in Hubble Flow for $Z_{n\Delta}$(0.34323) = 0.34323 for n_p - 0.867289 = 0.265422 and a distance of 4.479 Billion light years from n_p

$Z_{n\Delta'}$ = 1.07994 for n=0.265422 in Hubble Flow for $Z_{n\Delta}$(1.07994) = 1.07994 for n_p - 0.26544 = 0.86727 and a distance of 14.636 Billion light years from n_p
Z_{ni} = 1.84012 for n=0.132712 in Hubble Flow for Z_{ni}(1.84012) = 1.84012 for n_p - 0.13271 = 1.00000 and a distance of 16.876 Billion light years from n_p

The natural exponent e is defined in the inversion of scale parameter $1/a = \{1+1/n\}$

$e = \lim_{n\to\infty} \{1+1/n\}^n$ **for** $e = \{1 + 1/n\}$ **for** $x=1=hf/kT$ **in Planck's Radiation Law for a Black Body**

$e-1=1/n$ **for** $n=1/[e-1] = 1/Y^{n'} = X^{n'}$

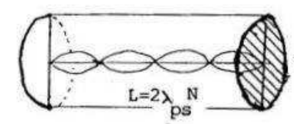
$n' = \ln\{e-1\}/\ln Y = 1.12492010..$
for a time coordinate 0.0075 or about 126.58 Million years ago

$$\boxed{e^{\frac{hf}{kT}} = 1 + \frac{1}{n} \quad \text{for } n(f,T) = \frac{1}{e^{hf/kT}-1}} \qquad \text{(Eq.\#26)}$$

Now consider the universe as a Black Body or a particle in a quantum box, the box being of course the quantumspace boundary r_{max}, itself bounded by omnispace as the 11-dimensional supermembrane, with 28 7-spheres relating to 26 bosonic dimensions via the quantization of Prime numbers as encountered.

The U-Field is quantized into 12-intersecting unified current loops and the extent is $4\lambda_{ps}=4\times10^{-22}$ m*.

We so consider the frequency interval $2\lambda_{ps}N$
and the "volume" of the black box is quantized
$N = L/2\lambda = Lf/2c$ with $dN = L.df/2c$ for $N^2 dN = (L^3 f^2/8c^3)\, df$



Surface Area of a sphere as octant of a cubic box volume L^3

Now the "volume" of the box is $L^3/8$ and our dimensionless volume becomes the Number of FREQUENCY STATES for a black body with frequencies in the interval df. Since the temperature for a given frequency interval determines the distribution of the radiation spectrum, we determine the spectral distribution dE/df via

As a photon has two quantum polarization spin momenta, the Frequency States are doubled.

Frequency States $\quad 2\times 4\pi N^2 dN = 8\pi L^3 f^2/8c^3\, df$

The number of photons in df: $\dfrac{8\pi f^2(V)}{c^3} \times \dfrac{1}{e^{hf/kT}-1}\, df = dP$

$dE = hf\, dP = \dfrac{8\pi h.V}{c^3} \cdot \dfrac{f^3}{e^{hf/kT}-1}\, df$

and the total energy in the cubic black box is: $\boxed{E=\int_0^\infty dE = \dfrac{8\pi hV}{c^3}\displaystyle\int_0^\infty \dfrac{f^3}{e^{hf/kT}-1}\, df}$ (Eq.#27)

Since we evaluate for a given T, we set $u=hf/kT$ and $du=(h/kT)df$
and we need to evaluate the proportionality constant via the integral $\displaystyle\int_0^\infty \frac{u^3}{e^u-1}\, du$

This can be written as: $\displaystyle\int_0^\infty \frac{u^3}{e^u-1}\, du = \Gamma(3+1)\zeta(3+1)$

The GAMMA function $\Gamma(x)$ satisfies the form: $x = \dfrac{\Gamma(x+1)}{\Gamma(x)}$ as analogue to our $\dfrac{n+1}{n} = 1 + \dfrac{1}{n}$
generally $\Gamma(x) = \int_0^\infty t^{x-1} e^{-t}\, dt$ and for n a positive integer then $\Gamma(n+1)=n!.\Gamma(1)=n!$

The ZETA function of Riemann is defined as $\zeta(z) = \sum_{n=1}^{\infty} 1/(n^z)$

We require $\Gamma(4).\zeta(4) = 3! \cdot \sum_{n=1}^{\infty} 1/n^4 = 3! \cdot (1/1 + 1/2^4 + 1/3^4 + ... + 1/n^4 ...)$.

This we derive via the function $f(x)=x^4$ and the application of Fourier Series in cos(nx)

$f(x)=x^4$ with period 2π, then $a_n = \dfrac{1}{\pi}\displaystyle\int_0^{2\pi} x^4.\cos(nx)dx = \frac{1}{\pi}\left\{\frac{4x^3}{n^2} - \frac{24x}{n^4}\right|_0^{2\pi} = \frac{32\pi^2}{n^2} - \frac{48}{n^4}$

$$\text{for } n=0, \quad a_0 = \frac{1}{\pi}\int_0^{2\pi} x^4\, dx = \frac{32\pi^4}{5}$$

$f(x)=x^4 = \frac{1}{2}a_o + \sum_{n=1}^{\infty} a_n.\cos(nx) = \dfrac{16\pi^4}{5} + \sum_{n=1}^{\infty}\left(\dfrac{32\pi^2}{n^2} - \dfrac{48}{n^4}\right).\cos(nx)$

$f(0)=f(2\pi)=\frac{1}{2}(0+16\pi^4) = 8\pi^4$ (Dirichlet Condition) and we use the result $\sum_{n=1}^{\infty}\dfrac{1}{n^2} = \dfrac{\pi^2}{6}$
and obtained similarly in setting $f(x)=x^2$.

Then for f(0), we have $\dfrac{24\pi^4}{5} = 32\pi^2.\dfrac{\pi^2}{6} - 48\sum_{n=1}^{\infty}\dfrac{1}{n^4}$ and $\sum_{n=1}^{\infty}\dfrac{1}{n^4} = \dfrac{\pi^4}{90}$

Total Energy $E = \dfrac{3!\,\pi^4 V.8\pi k^4 T^4}{90h^3c^3} = \dfrac{4V}{c}\underbrace{\left[\dfrac{2\pi^5 k^4}{15h^3c^2}\right]}_{\text{Stefan-Boltzmann Constant } \sigma} T^4 = \dfrac{4\sigma V T^4}{c}$

$\dfrac{\textbf{Radiation Energy}}{\textbf{Matter Energy}} = \dfrac{4\sigma T^4}{m_c Y^n c^3}$ **for Radiation Pressure = Matter Pressure**
Early Universe **Later Universe**

$T_{Equilibrium} = \sqrt[4]{18.20\,\dfrac{(n+1)^2}{n^3}} = \sqrt[4]{\dfrac{m_c Y^n c^3}{4\sigma}} \qquad \dfrac{n^3 Y^n}{n^2+2n+1} = \dfrac{72.80\sigma}{m_c c^3} = (1.65107\times10^{-4})\,(K^{-4}/V)$*

A Cosmic Background temperature of 18.35 Kelvin* for a cycle coordinate of 0.056391 and as 0.056391(16.88 Gy) or 951.2 Million Years after the Instanton to begin the birthing of galaxies

The Ylemic Gluon-Quark-Plasma Protostars of Universe as Vortex Energies

The stability of stars is a function of the equilibrium condition, which balances the inward pull of gravity with the outward pressure of the thermodynamic energy or enthalpy of the star (H=PV+U). The Jeans Mass M_J and the Jeans Length R_J a used to describe the stability conditions for collapsing molecular hydrogen clouds to form stars say, are well known in the scientific data base, say in formulations such as:

$M_J=3k_BTR/2Gm$ for a Jeans Length of $R_J=\sqrt{15k_BT/(4\pi\rho Gm)}=R_J=\sqrt{(k_BT/Gnm^2)}$.

Now the Ideal Gas Law of basic thermodynamics states that the internal pressure P and Volume of such an ideal gas are given by PV=nRT=NkT for n moles of substance being the Number N of molecules (say) divided by Avogadro's Constant L in n=N/L .
Since the Ideal Gas Constant R divided by Avogadro's Constant L and defines Boltzmann's Constant k=R/L. The statistical analysis of kinetic energy KE of particles in motion in a gas (say) gives a root-mean-square velocity (rms) and the familiar $2.KE=mv^2(rms)$ from the distribution of individual velocities v in such a system. It is found that PV=(2/3)N.KE as a total system described by the v(rms). Setting the KE equal to the Gravitational PE=GMm/R for a spherical gas cloud gives the Jeans Mass $(3/2N).(Nk_BT)=GMm/R$ with m the mass of a nucleon or Hydrogen atom and $M=M_J=3kTR/2Gm$ as stated.

The Jeans' Length is the critical radius of a cloud (typically a cloud of interstellar dust) where thermal energy, which causes the cloud to expand, is counter acted by gravity, which causes the cloud to collapse. It is named after the British astronomer Sir James Jeans, who first derived the quantity; where k_B is Boltzmann Constant, T is the temperature of the cloud, R is the radius of the cloud, m is the mass per particle in the cloud, G is the Gravitational Constant and ρ is the cloud's mass density (i.e. the cloud's mass divided by the cloud's volume).

Shortly after the Big Bang, there were of course no gas clouds in the early expanding universe and the Jeans formulations are not applicable to the mass seedling M_o; in the manner of the Jeans formulations as given. However, the universe's dynamics is in the form of the expansion parameter of General Relativity and so as $R(n)=R_{max}(n/(n+1))$ with the scale factor of Quantum Relativity.

Expressing the Jeans radius in the form of the Hawking radius of primordial micro black holes with a fixed nuclear density defined by subatomic parameters of the timespace made manifest in the QBBS, then allows analysis of the thermodynamic universe expansion as a function of temperature, independent on the distribution of the mass seedling M_o.as the Gamow-Hawking protostars matching the universal temperature background as potential vortex energies given by the Hawking masses.

The thermal internal energy or ITE=H is the outward pressure in equilibrium with the gravitational potential energy of GPE=Ω. The nuclear density in terms of the super brane parameters is $\rho_{critical}=m_c/V_{critical}$ with m_c a base-nucleon mass for an 'ylemic neutron'.

$V_{critical}= 4\pi R_e^3/3$ or the volume for the ylemic neutron as given by the classical electron radius $R_e=10^{10}\lambda_{ps}/360=\{e^*/2c^2\}_{mod}$.

$H=(\text{molarity})k_BT$ for molar volume as $N=(R/R_e)^3$ for $dH=3k_BTR^2/R_e^3$
The gravitational potential energy is $\Omega(R) = -\int G_oMdm/R$
$= -4\pi\rho G_o\int\{4\pi\rho R^3/3\}\{R^2/R\}dR$
$= -\{16\pi^2\rho^2G_o/3\}\int R^4dR = -\{16\pi^2\rho^2G_o/15\}\{R^5\}$
$d\Omega/dR=-\{16\pi^2\rho^2G_o/3\}\{R^4\}=-3G_om_c^2R^4$ for $dM/dR=d(\rho V)/dR=4\pi\rho R^2$ and for $\rho=M/V=3m_c/4\pi R_e^3$

For equilibrium, the requirement is that $dH=d\Omega$ in the minimum condition $dH+d\Omega=0$.

This gives $dH+d\Omega = 3k_BTR^2/R_e^3 - 3G_om_c^2R^4 = 0$ and the ylemic radius as:

$R_{ylem}=\surd\{kTR_e/G_om_c^2\}$ …………………………..[EQ.4]

as the Jeans-Length precursor or progenitor for subsequent stellar and galactic generation.

The ylemic (Jeans) radii are all independent of the mass of the star as a function of its nuclear generated temperature.

Applied to the proto-stars of the vortex neutron matter or ylem, the radii are all neutron star radii and define a specific range of radii for the gravitational collapse of the electron degenerate matter.
These spans from the 'First Three Minutes' scenario of the cosmogenesis to 1.1 million seconds (or about 13 days) and encompasses the standard beta decay of the neutron, underpinning radioactivity.

The upper limit defines a trillion-degree temperature and a radius of over 40 km; the trivial Schwarzschild solution gives a typical ylem radius of so 7.4 kilometers and the lower limit defines the 'mysterious' planetesimal limit as 1.8 km. For long a cosmological conundrum, it could not be modelled just how the molecular and electromagnetic forces applicable to conglomerate matter distributions (say gaseous hydrogen as cosmic dust) on the quantum scale of molecules could become strong enough to form say 1 km mass concentrations, required for 'ordinary' gravity to assume control.

The ylem radii's lower limit is defined in the cosmology as the Dirac monopole wavelength modulation at the 1.0 – 1.2 billion Kelvin degree marking the temperature of the universe in its defining Hawking-Gamow micro-mass black holes, which apply the Jeans formulation of hydrogen clouds to the primordial ylemic dineutron scenario. The stellar evolution from the ylemic (di-neutronic) templates is well established in QR and confirms most of the Standard Model's ideas of nucleosynthesis and the general cosmology for a thermodynamically expanding universe.

$n=H_ot$ t=	**Radius m* $R(n)=R_H\{n/[n+1]$**	**Mod factor**	**Quantum Modulation**	**Cosmological**	**Temperature CBBR**	**Hawking μbh Radius**	**Hawking Temp $T_{Hawking}=hc^3/4\pi k_BG_oM_{Hawking}$**

				comoving redshift $z+1=\sqrt{1+2/n[n+2]}$ Energy J*/GeV*	**T= $\sqrt[4]{18.2(n+1)^2/n^3}$ of cycle time n** $T_{Hawking}/T_{ylem} = 1 = hcR_e^3/2\pi G_o m_c^2 R_{ylem}^2$ RHawking **Boson Energy E=kT**	**Ylem Radius Hawking Mass**	**Ylem Radius $R_{ylem}=\sqrt{k_B T R_e^3/G_o m_c^2}$ Hawking Radius $R_{Hawking}=hc/2\pi k_B T_{Hawking}$ Hawking Mass $M_{Hawking}=R_{Hawking}c^2/2G_o$**
2.559×10^{-12} 15.77 days	$\lambda^*=4.087933536\times10^{14}$ Monopolar mean classical bound	$2\pi r^*\lambda^*$ MQB= 1.351	$2\pi r^*=3.30485\times10^{-15}$ Monopolar mean quantum bound	625,160.7	1.0210×10^{9} K* 1.44×10^{-14} J*/89.723 keV*	2.2084×10^{-12} m* 1,680.10 m* 8.9440×10^{14} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=6.80\times10^{29}$ kg*/0.340M_{sun}
2.253×10^{-12} 1.2×10^{6} s* 13.888 days	$R_E^*=3.6\times10^{14}$ as $360\times R_e\times10^{12}=1/R_E^*$	1	$R_e^*=R_e=10^{10}\lambda_{ps}/360$	666,181.2	1.1231×10^{9} K* 1.59×10^{-14} J*/98.696 keV*	2.0076×10^{-12} m* 1,762.10 m* 8.1309×10^{14} kg*	unity modulation bounded by Dirac's monopole $R_{ylem}=R_{curv}$ for $M_{ylem}=7.14\times10^{29}$ kg*/0.357M_{sun}
2.151×10^{-12} 13.2561 days	$R_E=\sqrt[3]{E}(\lambda_{weyl}/2\pi)=3.43597108\times10^{14}$	$R_E R_e$ 0.9544	$R_e=2.7778\times10^{-15}$	681,897.2	1.1630×10^{9} K* 1.64×10^{-14} J*/102.20 keV*	1.9387×10^{-12} m* 1,793.137 m* 7.8519×10^{14} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=7.26\times10^{29}$ kg*/0.363M_{sun}
4.895×10^{-14} 26,069.4 s* 7.24 hours	7.82083×10^{12}	4.945×10^{-4}	6.32267×10^{-17}	4.5198×10^{6}	1.9847×10^{10} K* 2.80×10^{-13} J*/1.744 MeV*	1.1361×10^{-13} m* 7,407.407 m* 4.6011×10^{13} kg*	Nuclear density $\rho_{nuc}=3m_c Y^n/4\pi\{R_e\}^3$ $(1.105\text{-}1.907)\times10^{16}$ [kg/m^3]* $R_{ylem}=\sqrt{3k_BT/4\pi G_o m_c \rho_{nuc}}$ for 1.5 M_{Sun} $M=\Sigma m_{ss}=\Sigma hf_{ss}/c^2$ mass quantization for space quanta count $M/\Sigma m_{ss}=h/m_{ss}c^2=hf_{ps}/h=f_{ps}\vert_{mod}=3\times10^{30}$ as $M_{chandra}=1.50$ M_{Sun}
2.117×10^{-14} 11,274.58 s* 3.132 hours	3.38237×10^{12}	9249×10^{-5}	2.73445×10^{-17}	6.8728×10^{6}	3.7215×10^{10} K* 5.25×10^{-13} J*/3.270 MeV*	6.05875×10^{-14} m* 10,143.34 m* 2.4538×10^{13} kg*	$R_{Hawking}=R_e/2\pi\alpha$ = Compton radius Ess modulation Electron degeneracy core for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=4.11\times10^{30}$ kg*/2.054M_{sun}
1.938×10^{-14} 10,320.0 s* 2.87 hours	3.0959915×10^{12}	7.749×10^{-5}	2.502924×10^{-17}	7.1836×10^{6}	3.9768×10^{10} K* 5.61×10^{-13} J*/3.495 MeV*	5.6698×10^{-14} m* 10,485.55 m* 2.2963×10^{13} kg*	Modulation MQB/0.9544=1.41555 for $M_{chandra}$ lower Tolman-Oppenheimer-Volkoff (TOV) limit for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=4.25\times10^{30}$ kg*/2.123 M_{sun}
1.013×10^{-14} 5395.05 s* 1.50 hours	1.618509×10^{12}	2.1×10^{-5}	1.3084678×10^{-17}	9.9354×10^{6}	6.4684×10^{10} K* 9.13×10^{-13} J*/5.684 MeV*	3.4858×10^{-14} m* 13,372.84 m* 1.4117×10^{13} kg*	Neutron decay mass loss: 8.844/4.900=1.805 Increases $M_{chandra}$ to 1.805$M_{chandra}$=2.708 M_{sun}

							as upper TOV-limit for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=5.42x10^{30}$ kg*/2.708 M_{sun}
4.028x 10^{-15} 2144. 96 s* 32.74 9 min	$6.43488x10^{11}$	3.348x 10^{-6}	$5.20221x10^{-18}$	$1.5757x10^{7}$	$1.2919x10^{11}$ K* $1.82x10^{-12}$ J*/11.35 MeV*	1.7453x 10^{-14} m* 18,899.0 0 m* 7.0686x 10^{12} kg*	$R_{Hawking}=2\pi R_e$ $R_{ylem}=R_{curv}$ for $M_{ylem}=7.65x10^{30}$ kg*/3.827M_{sun}
2.160x 10^{-15} 1150. 36 s* 19.17 3 min	$R_F=\sqrt[3]{F(\lambda_{weyl}/2\pi)}=3.45107750x10^{11}$	9.6x10^{-7}	$R_f=2.789990x10^{-18}$	2.15163x10^{7}	$2.0614x10^{11}$ K* $2.91x10^{-12}$ J*/18.12 MeV*	1.0938x 10^{-14} m* 23,872.8 7 m* 4.4299x 10^{12} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=9.67x10^{30}$ kg*/4.834M_{sun}
2.123x 10^{-15} 1130. 52 s* 18.84 20 min	$R_G=\sqrt[3]{G(\lambda_{weyl}/2\pi)}=3.39155801x10^{11}$	9.3x10^{-7}	$R_g=2.741872x10^{-18}$	2.17042x10^{7}	$2.0885x10^{11}$ K* $2.95x10^{-12}$ J*/18.35 MeV*	1.0796x 10^{-14} m* 24,029.2 8 m* 4.3724x 10^{12} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=9.73x10^{30}$ kg*/4.866M_{sun}
2.084x 10^{-15} 1109. 96 s* 18.49 9 min	$R_{F'}=\sqrt[3]{F')}(\lambda_{weyl}/2\pi)=3.32987275x10^{11}$	9.0x10^{-7}	$R_{f'}=2.69200x10^{-18}$	2.19044x10^{7}	$2.1175x10^{11}$ K* $2.99x10^{-12}$ J*/18.61 MeV*	1.0648x 10^{-14} m* 24,195.5 4 m* 4.3125x 10^{12} kg*	Primordial neutron decay: $\lambda_{F'}-2\pi\lambda_{RMP}$ (1109.96-229.82) s* = 880.14 s*/879.28 s from Higgs Boson with RMP template Neutron decay mass loss: 8.844/4.900=1.805 Increases $M_{chandra}$ to 1.805$M_{chandra}$=2.708 M_{sun} as upper TOV-limit for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=9.80x10^{30}$ kg*/4.900M_{sun}
8.754x 10^{-16} 466.1 86 s* 7.770 min	$1.39856x10^{11}$	1.6x10^{-7}	8.5232x10-19	3.89284x10^{7}	$5.0167x10^{11}$ K* $7.08x10^{-12}$ J*/44.09 MeV*	5.55556 x10^{-15} m* 33,497.3 3 m* 2.2500x 10^{12} kg*	$R_{Hawking}=2R_e$ $R_{ylem}=R_{curv}$ for $M_{ylem}=1.3566x10^{31}$ kg*/6.78M_{sun}
4.315x 10^{-16} 229.8 21 s* 3.830 4 min	$R_{neutrondecay}=6.8946323x10^{10}$	3.8x10^{-8}	$2\pi\lambda_{RMP}=4\pi^2R_{RMP}=5.57389763x10^{-19}$	4.81381x10^{7}	$6.89874x10^{11}$ K* $9.74x10^{-12}$ J*/60.62 MeV*	3.2684x 10^{-15} m* 43,672.5 4 m* 1.3237x 10^{12} kg*	Beginning of neutron decay from Higgs Boson with RMP template $R_{ylem}=R_{curv}$ for $M_{ylem}=1.77x10^{31}$ kg*/8.844M_{sun}
3.474x 10^{-16} 185.0 06 s* 3.083 min	$5.550187x10^{10}$	2.5x10^{-8}	$4.486994x10^{-19}$	5.36526x10^{7}	$8.1172x10^{11}$ K* $1.15x10^{-11}$ J*/71.33 MeV* to	2.7778x 10^{-15} m* 47,372.4 0 m* 1.1250x 10^{12} kg*	$R_{Hawking}=R_e$ limited by $\rho_{nucleon}=m_c/R_e^3$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{R_e\}^3$ (1.105-1.907)x10^{16} [kg/m^3]*

					$3.1636x10^{12}$ K*		$R_{ylem}=R_{curv}$ for $M_{ylem}=1.92x10^{31}$ kg*/$9.593M_{sun}$
$1.829x10^{-16}$ 97.398 s* 1.623 min	$2.921968x10^{10}$	$6.9x10^{-9}$	$2.362236x10^{-19}$	$7.39446x10^{7}$	$1.3134x10^{12}$ K* $1.85x10^{-11}$ J*/115.4 MeV* to $1.3401x10^{13}$ K*	$1.7168x10^{-15}$ m* 60,257.94 m* $6.9529x10^{11}$ kg*	$R_{Hawking}=XR_e$ limited by $\rho_{nucleon}=Y^3m_c/R_e^3$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{XR_e\}^3$ $(4.683\text{-}8.077)x10^{16}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=2.44x10^{31}$ kg*/$12.202M_{sun}$
$1.379x10^{-16}$ 73.422 s* 1.224 min	$2.202648x10^{10}$	$3.9x10^{-9}$	$1.780709x10^{-19}$	$8.51671x10^{7}$	$1.6234x10^{12}$ K* $2.29x10^{-11}$ J*/142.7 MeV* to $2.5309x10^{13}$ K*	$1.3889x10^{-15}$ m* 66,994.07 m* $5.6250x10^{11}$ kg*	$R_{Hawking}=½R_e$=protonic diameter limited by $\rho_{nucleon}=8m_c/R_e^3$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{½R_e\}^3$ $(8.844\text{-}15.253)x10^{16}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=2.71x10^{31}$ kg*/$13.566M_{sun}$
$7.258x10^{-17}$ 38.650 s*	$1.159515x10^{10}$	$1.1x10^{-9}$	$9.37398x10^{-20}$	$1.17383x10^{8}$	$2.6268x10^{12}$ K* $3.71x10^{-11}$ J*/230.8 MeV* to $1.0721x10^{14}$ K*	$8.5838x10^{-16}$ m* 85,218.27 m* $3.4764x10^{11}$ kg*	$R_{Hawking}=½XR_e$ limited by $\rho_{nucleon}=8Y^3m_c/R_e^3$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{½XR_e\}^3$ $(3.746\text{-}6.461)x10^{17}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=3.45x10^{31}$ kg*/$17.257M_{sun}$
$5.664x10^{-17}$ 30.164 s*	$9.04906x10^{9}$	$6.6x10^{-10}$	$7.31562x10^{-20}$	$1.32875x10^{8}$	$3.163603x10^{12}$ K* $4.47x10^{-11}$ J*/278.0 MeV*	$7.1272x10^{-16}$ m* 93,522.16 m* $2.8865x10^{11}$ kg*	For electron degeneracy $\rho_{nucleon}=m_c/R_e^3$ for a temperature limit of $T_{Hawking}=m_cc^2/2k_B=3.163603x10^{12}$ K* = Neutron star-black hole limit $\rho_{nucleon}=\rho_{BH}$ $R_{ylem}=R_{curv}$ for $M_{ylem}=3.7876x10^{31}$ kg*/$18.938M_{sun}$
$2.996x10^{-17}$ 15.957 s*	$4.78696x10^{9}$	$1.9x10^{-10}$	$3.86997x10^{-20}$	$1.82690x10^{8}$	$5.1002x10^{12}$ K* $7.20x10^{-11}$ J*/448.2 MeV*	$4.42097x10^{-16}$ m* 118,744.56 m* $1.7905x10^{11}$ kg*	$R_{Hawking}=R_e/2\pi$ Ess modulation Neutron degeneracy $R_{ylem}=R_{curv}$ for $M_{ylem}=4.81x10^{31}$ kg*/$24.05M_{sun}$
$8.264x10^{-18}$ 4.401 s*	$1.320239x10^{9}$	$1.4x10^{-11}$	$1.0673343x10^{-20}$	$3.4787x10^{8}$	$1.340124x10^{13}$ K* $1.53x10^{-10}$ J*/954.8 MeV*	$1.6825x10^{-16}$ m* 192,484.62 m* $6.8141x10^{10}$ kg*	For neutron degeneracy in the diameter of a protonic nucleus $\rho_{nucleon}=Y^3m_cR_e$ $R_{ylem}=R_{curv}$ for $M_{ylem}=7.7956x10^{31}$ kg*/$38.978M_{sun}$
$3.540x10^{-18}$ 1.885 s*	$5.65566x10^{8}$	$2.6x10^{-12}$	$4.572262x10^{-21}$	$5.3150x10^{8}$	$2.530882x10^{13}$ K* $3.57x10^{-10}$ J*/2.22 GeV*	$8.9090x10^{-17}$ m* 264,520.60 m* $3.6081x10^{10}$ kg*	For neutron degeneracy in the radial size of a protonic nucleus $\rho_{nucleon}=8m_c3R_e^3$

							$R_{ylem}=R_{curv}$ for $M_{ylem}=1.07131\text{x}10^{32}$ kg*/53.565M_{sun}
$5.165\text{x}10^{-19}$ 0.27505 s*	$8.251498\text{x}10^{7}$	$5.5\text{x}10^{-14}$	$6.670843\text{x}10^{-22}$	$1.3915\text{x}10^{9}$	$1.072099\text{x}10^{14}$ K* $1.51\text{x}10^{-9}$ J*/9.42 GeV*	$2.1031\text{x}10^{-17}$ m* 544,428.68 m* $8.5177\text{x}10^{9}$ kg*	For neutron degeneracy in the charge radius of a proton $\rho_{nucleon}=8Y^3m_cR_e^3$ = Quark star limit $R_{ylem}=R_{curv}$ for $M_{ylem}=2.20494\text{x}10^{32}$ kg*/110.247M_{sun}
$4.917\text{x}10^{-19}$ 0.2618 s*	$7.85497\text{x}10^{6}$	$4.9\text{x}10^{-16}$	$6.23027\text{x}10^{-23}$	$1.4262\text{x}10^{9}$	$1.11243\text{x}10^{14}$ K* $1.57\text{x}10^{-9}$ J*/9.78 GeV*	$2.0269\text{x}10^{-17}$ m* 554,574.32 m* $8.2089\text{x}10^{9}$ kg*	$R_{Hawking}=\alpha\, R_e$ = Inverse Compton radius $R_{ylem}=R_{curv}$ for $M_{ylem}=2.25\text{x}10^{32}$ kg*/112.30M_{sun}
$1.340\text{x}10^{-20}$ 1/140 =0.007137	$R_{EW}=2.141143\text{x}10^{6}$ Dark matter universe is illuminated as the EMI light path intersects the dark matter haloed ylemic universe	$3.7\text{x}10^{-17}$	$1.730986\text{x}10^{-23}$ Ylemic radius shrinks as the radial universe expands with the separation of the short range nuclear weakon interaction from the long range electromagnetic interaction	$8.6382\text{x}10^{9}$	$1.65825\text{x}10^{15}$ K* $2.34\text{x}10^{-8}$ J*/146 GeV*	$1.3597\text{x}10^{-18}$ m* $2.14115\text{x}10^{6}$ m* $5.5069\text{x}10^{8}$ kg*	Electroweak Unification $T_{EW}=E/k_B=2\text{x}10^{15}$ K* (146-251)GeV* for $\{W^- + W^+ + Z^o\}$ R_{ylem} = R(n) as size of the universe Dark matter halo defined as a quark-lepton geometric kernel-ring structure crystallizing the ylem neutrons from the Higgs Boson and RMP template $R_{ylem}=R_{curv}$ for $M_{ylem}=8.67\text{x}10^{32}$ kg*/433.6.7M_{sun}
$6.958\text{x}10^{-22}$ 0.00037	111,173.6	$1.0\text{x}10^{-19}$	$8.98772\text{x}10^{-25}$	$3.791\text{x}10^{10}$ $1.799\text{x}10^{-30}$ J* $1.120\text{x}10^{-11}$ eV*	$1.52452\text{x}10^{16}$ K* $2.15\text{x}10^{-7}$ J*/1.34 TeV*	$1.4790\text{x}10^{-19}$ m* $6.4921\text{x}10^{6}$ m* $5.9898\text{x}10^{7}$ kg*	$R_{Hawking}=\alpha^2R_e$ = Inverse 1st Bohr radius for ylemic template for atomic structure as micro Hawking black hole to manifest at $R_{Hawking}/\alpha^4=9.798883\text{x}10^{-7}$ m* $R_{ylem}=R_{curv}$ for $M_{ylem}=2.63\text{x}10^{33}$ kg*/1314.7M_{sun}
$3.562\text{x}10^{-27}$ $1.897\text{x}10^{-9}$	$R_{BU}=0.569092$ universe is 1.1382 meters across encompassed by a ylem dark matter halo of radius $6.2584\text{x}10^{8}$ m* in the inflaton EMMI universe	$4.0\text{x}10^{28}$	$7.038245\text{x}10^{28}$ Ylemic universe is manifested in the primordial Hawking micro black hole defining the dark matter ylemic halo	$1.676\text{x}10^{12}$ $3.515\text{x}10^{-25}$ J* $2.19\text{x}10^{-6}$ eV*	$T_{ps}=1.4167\text{x}10^{20}$ K* 0.002 J*/12,449.8 TeV*	$1.59155\text{x}10^{-23}$ m* $6.2584\text{x}10^{8}$m* 6445.78 kg*	Bosonic temperature unification $T(n)=\sqrt[4]{\{\{H_o^3M_o/1100\pi^2\sigma\}.(n+1)^2/n^3\}}$ $=\sqrt[4]{\{18.2(n+1)^2/n^3\}}=T_{ps}=1.4167\text{x}10^{20}$ K* $R_{ylem}=R_{curv}$ for $M_{ylem}=2.53\text{x}10^{35}$ kg*/126,732.0M_{sun}

The standard model is correct in the temperature assignment but is amiss in the corresponding 'size-scales' for the cosmic expansion. The Big Bang cosmogenesis describes the universe as a Planck-Black Body Radiator, which sets the Cosmic-Microwave-Black Body Background Radiation Spectrum (CMBR) as a function of n as $T^4=18.2(n+1)^2/n^3$ and derived from the Stefan-Boltzmann-Law and the related statistical frequency distributions. The metric from General Relativity for Schwarzschild-Black Hole Evolution has $R_S=2GM/c^2$ as a function of the star's Black Hole's mass M and we have the ylemic Radius as a function of temperature only as $R_{ylem}\surd(kT.R_e^3/G_o m_c^2)$.

The nucleonic mass-seed $m_c=m_{planck}\alpha^9$ and the product $G_o m_c^2$ is a constant in the partitioned evolution of $m_c(n)=Y^n.m_c$ and $G(n)=G_o.X^n$.

Identifying the ylemic Radius with the Hawking radius gives the properties of the micro-mass black hole at the temperature of the universe and identifying the ylemic radius with a standard Schwarzschild Radius gives the properties of neutron-quark stars at their local temperatures as manifesting vortex energies from their Hawking-Gamow ylemic seedling black holes at a later n-cycle coordinate and in a later and cooler universe.

Quantum Relativity (QR) defines the Weyl-Temperature limit for Bosonic Unification as 1.9 nanoseconds at a temperature of 1.42×10^{20} Kelvin and the weak-electromagnetic unification at 1/140 seconds or 7 microseconds at $T=1.68\times10^{15}$ K*. The earliest ylem stars are limited at a temperature of 1.68×10^{15} K* at the electroweak unification nexus with a mass limit of 433.58 M_{sun} or 8.672×10^{32} kg* as the first potential for a ylemic proto-star after the bosonic unification and after the undifferentiated 'bosonic plasma' entered its phase of the QBBS temperature no longer exceeding the temperature and energy of individualised elementary particles, enabling the di-neutrons to be born as ylem or Gamow's neutron matter.

185 seconds or 3 minutes after the Instanton, the universe was so 111 Million km across, when its ylemic 'concentrated' VPE-Temperature was so 812 Billion K* and the Hawking radius was the same as the radius of the classical electron for a micro black hole mass of 1.1×10^{12} kg* and an ylem radius of 47.4 km* indicating a future black hole macro-mass of 1.9×10^{31} kg* as 9.6 M_{sun} as a limiting quark gluon-plasma star.

The 'pixelated' universe so became scaled in ylemic temperature bubbles in the form of primordial White-Hole-Sources coupled to Black Hole-Sinks in a form of macro quanta to reflect the sourcesink Eps coupled to the sinksource Ess of the underpinning elementary super membrane Eps.Ess. As the universe continued its expansion, the WH-BH dyads remained as temperature hotspots embedded within the cooling spacetime as the Black Body Radiator of the cosmogenesis.

As the universe expanded and cooled, the first ylem stars crystallized from the mass seedling M_o. The universe's expansion however cooled the CMBR background and as the temperature characterizing the Chandrasekar white dwarf-neutron star limit is at a temperature of 20 Billion Kelvin, the size of the universe at this temperature provides an upper limit for the size of a star in 7.8×10^{12} m* or a radius 7.8 billion kilometers. This encompasses about 52 Astronomical Units (1 AU=1.5×10^8 km as the distance between the earth and the sun) and so the radial extent and the 'size' of a typical solar system, encompassed by supergiants on the HR-diagram.

The ylemic temperature decreases in direct proportion to the square of the ylemic radius and one hitherto enigmatic aspect in cosmology relates to this in the planetesimal limit. A temperature of so 1.2 billion degrees defines an ylemic radius of 1.8 km as the dineutronic limit for proto-neutron stars contracting from 47.4 km* down to this size just 1.1 million seconds or so 13 days after the Quantum

Big Bang Dirac Singularity. Chunks of matter can conglomerate via molecular and other adhesive interactions towards this size, where then the accepted gravity is strong enough to build planets and moons; but the ylemic template is defined in subatomic parameters reflecting the mesonic inner and leptonic outer ring boundaries and this the planetesimal limit becomes the modulation of the Dirac monopole wavelength as the mapping of the leptonic outer ring. So neutrino-gluon and quark blueprints micro-macro dance their basic definition as the holographic projections of the space-time quanta.

The nuclear density for neutron stars for electron degeneracy at the leptonic ring is increased for neutron degeneracy at the mesonic ring and therefore modifies the Chandra mass limit for white dwarves in the Tolman-Oppenheimer-Volkoff (TOV) limit for neutron stars. A lower limit for the TOV limit is obtained in the Dirac monopole modulation MQB/0.9544=1.41555 increasing the Chandrasekar mass to 1.5x1.41555=2.123 solar masses. The upper limit considers the primordial neutron decay as superimposed onto the ylemic mass evolution in the loss of neutrons between the mass content of the ylemic protostars at the beginning and the end of the primordial beta minus decay of lefthanded neutrons into lefthanded protons and lefthanded electrons with righthanded antineutrinos. At the beginning of the 880.14 seconds the ylemic Hawking mass would be 8.844 solar masses as a function of its radius and reducing to 4.900 solar masses at the end of neutron decay for a mass fraction of 1.804. The upper TOV limit for the Chandrasekar mass so becomes 1.5x1.804=2.706 solar masses.

Hence any star experiencing electron degeneracy is actually becoming ylemic or dineutronic, the boundary for this process being the Chandrasekhar mass, extended to the TOV mass for neutron degeneracy. The ylemic protostar mass at the beginning of neutron decay also sets a natural limit for any stellar black holes in 8.844 solar masses or $1.769\text{x}10^{31}$ kg*.

The density of a black hole is calculated from $\rho_{BH}=M_{BH}/V_{BH} =M_{BH}c^6/8G_o^3M_{BH}^3=c^6/8G_o^3M_{BH}^2=c^2/2G_o r_{curv}^2= c^2/2G_o r_{ylem}^2=\{m_c c^2/2k_B T_{Hawking}\}\{m_c/R_e^3\}=\{m_c c^2/2k_B T_{Hawking}\}\{\rho_{nucleon}\}$

For Hawking's micro black holes activated as Gamow's ylemic protostars then, the relationship between the black hole density and the neutron star density becomes a function of the ylemic-universal temperature projected from the ylem time into the future time when the neutron stars, magnetars and quark stars would be born from as the remnants of supernovae or the merger of neutron stars with each other or black holes.

$k_B T_{Hawking}=½m_c c^2\{\rho_{nucleon}\}/\rho_{BH}\}$ and the limit for an electron degenerate star is given in the black hole density equal to the nucleon density for $k_B T_{Hawking}=½m_c c^2$ and so for a temperature $T_{Hawking}=m_c c^2/2k_B=3.163603\text{x}10^{12}$ K*

For electron degeneracy $\rho_{nucleon}=m_c/R_e^3$; for a temperature limit of $T_{Hawking}=m_c c^2/2k_B=3.163603\text{x}10^{12}$ K*

For neutron degeneracy in the diameter of a protonic nucleus $\rho_{nucleon}=Y^3 m_c R_e^3$; for a temperature limit of $T_{Hawking}=Y^3 m_c c^2/2k_B=1.340124\text{x}10^{13}$ K*

For neutron degeneracy in the radial size of a protonic nucleus $\rho_{nucleon}=8m_c3R_e^3$; for a temperature limit of $T_{Hawking}=8m_cc^2/2k_B=2.530882\text{x}10^{13}$ K*

For neutron degeneracy in the charge radius of a proton $\rho_{nucleon}=8Y^3m_cR_e^3$; for a temperature limit of $T_{Hawking}=8Y^3m_cc^2/2k_B=1.072099\text{x}10^{14}$ K*
Considering the size of the proton for neutron degeneracy engages a displacement scale from 2.778 to 0.858 fermi in a factor of 3.235 for a change in the nuclear density in a factor of $(3.235)^3=33.87$ from $1.105\text{x}10^{16} - 3.743\text{x}10^{17}$ [kg/m^3]*.

Macrostate						Macrostate
$T_{ps}\vert_{mod}$	←	$M_{curv}=R_{Hawking}c^2/2G_o$	←	$R_{Hawking}=hc/2\pi k_BT_{curv}$	←	T_{curv} as $T_{Hawking}$
$3.602774\text{x}10^{-12}$ K*		$2.534656\text{x}10^{35}$ kg*		$6.258410\text{x}10^{8}$ m*		$3.602774\text{x}10^{-12}$ K*
$T_{ps}=1.41671\text{x}10^{20}$ K*		$6.258410\text{x}10^{8}$ m*		$2.534656\text{x}10^{35}$ kg*		$3.602774\text{x}10^{-12}$ K*
$T_{Hawking}$	→	$R_{ylem}=\surd\{k_BT_{Hawking}R_e^3/G_om_c^2\}$	→	$M_{curv}=R_{ylem}c^2/2G_o$	→	$T_{curv}=hc/2\pi k_BR_{ylem}$
Macrostate						Macrostate
$T_{ps}=1.41671\text{x}10^{20}$ K*		$r_{ps}=1.591549\text{x}10^{-23}$ m*		6445.775 kg*		$T_{ps}=1.41671\text{x}10^{20}$ K*
$T_{Hawking}$	→	$R_{Hawking}=hc/2\pi k_BT_{Hawking}=R_{curv}$	→	$M_{curv}=R_{curv}c^2/2G_o$	→	$T_{Hawking}=hc/2\pi k_BR_{curv}$
Microstate						Microstate

For the Bosonic Temperature unification $n_{BU}=H_ot_{BU}=3.562\text{x}10^{-27}$ for $T_{CMBR}=T_{ps}=1.417\text{x}10^{20}$ K* a Hawking radius $R_{Hawking}=r_{ps}=hc/2\pi k_BT_{Hawking}=1.591\text{x}10^{-23}$ m* for a present micro black hole mass $M_{ylem}=HM/T_{Hawking}=6445.78$ kg* infers a macrostate ylem radius $6.258\text{x}10^{8}$ m* as a Hawking microstate radius for a macrostate HM black hole mass of $M_{curv}=HM/T_{ylem}=2.535\text{x}10^{35}$ kg*; for a ylem temperature $T_{ylem}=3.603\text{x}10^{-12}$ K*modulating the macrostate in the microstate as a minimum boundary self-state for the age of the universe.

Macrostate						Macrostate
$T_{EW}\vert_{mod}$	←	$M_{curv}=R_{Hawking}c^2/2G_o$	←	$R_{Hawking}=hc/2\pi k_BT_{curv}$	←	T_{curv} as $T_{Hawking}$
$1.0530621\text{x}10^{-9}$ K*		$8.671658\text{x}10^{32}$ kg*		$2.14115\text{x}10^{6}$ m*		$1.0530621\text{x}10^{-9}$ K*
$T_{EW}=1.65825\text{x}10^{15}$ K*		$2.14115\text{x}10^{6}$ m*		$8.671658\text{x}10^{32}$ kg*		$1.0530621\text{x}10^{-9}$ K*
$T_{Hawking}$	→	$R_{ylem}=\surd\{k_BT_{Hawking}R_e^3/G_om_c^2\}$	→	$M_{curv}=R_{ylem}c^2/2G_o$	→	$T_{curv}=hc/2\pi k_BR_{ylem}$
Macrostate						Macrostate
$T_{EW}=1.65825\text{x}10^{15}$ K*		$1.359725\text{x}10^{-18}$ m*		$5.506886\text{x}10^{8}$ kg*		$T_{EW}=5.618369\text{x}10^{12}$ K*
$T_{Hawking}$	→	$R_{Hawking}=hc/2\pi k_BT_{Hawking}=R_{curv}$	→	$M_{curv}=R_{curv}c^2/2G_o$	→	$T_{Hawking}=hc/2\pi k_BR_{curv}$
Microstate						Microstate

For the electroweak unification $n_{EW}=H_ot_{EW}=1.340\text{x}10^{-20}$ for $T_{CMBR}=T_{EW}=1.658\text{x}10^{15}$ K* a Hawking radius $R_{Hawking}=r_{EW}=hc/2\pi k_BT_{Hawking}=1.360\text{x}10^{-18}$ m* for a present micro black hole mass $M_{ylem}=HM/T_{Hawking}=5.507\text{x}10^{8}$ kg* infers a macrostate ylem radius $2.141\text{x}10^{6}$ m* as a Hawking microstate radius for a macrostate HM black hole mass of $M_{curv}=HM/T_{ylem}=8.671\text{x}10^{32}$ kg*; for a ylem temperature $T_{ylem}=1.053\text{x}10^{-9}$ K*modulating the macrostate in the microstate as a minimum boundary self-state for the age of the universe.

Macrostate						Macrostate
$T_{present}\vert_{mod}$	←	$M_{curv}=R_{Hawking}c^2/2G_o$	←	$R_{Hawking}=hc/2\pi k_BT_{curv}$	←	T_{curv} as $T_{Hawking}$
0.02589 K*		$3.527\text{x}10^{25}$ kg*		0.08709 m*		0.02589 K*
$T_{present}=2.747$ K*		0.08709 m*		$3.527\text{x}10^{25}$ kg*		0.02589 K*

$T_{Hawking}$	→	$R_{ylem}=\sqrt{\{k_BT_{Hawking}R_e^3/G_om_c^2\}}$	→	$M_{curv}=R_{ylem}c^2/2G_o$	→	$T_{curv}=hc/2\pi k_BR_{ylem}$
Macrostate						Macrostate
$T_{present}$=2.747 K*		8.208×10^{-4} m*		3.324×10^{23} kg*		$T_{present}$=2.747 K*
$T_{Hawking}$	→	$R_{Hawking}=hc/2\pi k_BT_{Hawking}=R_{curv}$	→	$M_{curv}=R_{curv}c^2/2G_o$	→	$T_{Hawking}=hc/2\pi k_BR_{curv}$
Microstate						Microstate

For a present n-cycle coordinate $n_{present}$=1.132711 for T_{CMBR}=2.747 K* a Hawking radius $R_{Hawking}=r_{Hpresent}=hc/2\pi k_BT_{Hawking}=8.208\times10^{-4}$ m* for a present micro black hole mass $M_{ylem}=HM/T_{Hawking}=3.324\times10^{23}$ kg* infers a macrostate ylem radius 0.0871 m* as a Hawking microstate radius for a macrostate HM black hole mass of $M_{curv}=HM/T_{ylem}=3.527\times10^{25}$ kg*; for a ylem temperature T_{ylem}=0.0259 K* modulating the macrostate in the microstate as a maximum boundary self-state for the age of the universe.

As the ylem radius is proportional to the square root of the ylem universal temperature, but decreases with time in the universal temperature evolution for an increase in a black hole's radius; the increase of the ylem protostar mass with temperature is compensated in the inverse proportionality in the Hawking modulus in the radii of the ylem protostar and the curvature

$$R_{Hawking} = hc/2\pi k_BT_{Hawking} = 2G_oM/c^2 = R_{curv} = R_{ylem}=\sqrt{\{k_BTR_e^3/G_om_c^2\}}.$$

Nuclear density then varies as $\rho_{nuclear}=\{3c^4k_B/16\pi G_o^3m_c\}T/M^2 = \{5.0129636\times10^{66}\}\ T/M^2$ which identifies the Chandra mass of 1.5 solar masses as $f_{ps}^2=9\times10^{60}$
frequency states modulating the nuclear density for a temperature of 1.9847×10^{10} K* for a Hawking-Gamow micro black hole of mass 4.6011×10^{13} kg*

$$T^3 = \{hc^3/4\pi k_BG_o\}^2\ \rho_{nuclear}/\{5.013\times10^{66}\} = \rho_{nuclear}\ \{h^2c^2G_om_c/3\pi k_B^3\}\ [K^3]*$$

$$= \rho_{nuclear}\ \{1.66348029\times10^{-19}\}\ [K^3]*$$

Nuclear densities for neutron stars, magnetars and quark-plasma stars so become restricted in the subatomic parameters on the fermi scale all

of at about half of the classical electron radius scale a Protonic Diameter, the Protonic Radius must then indicate the limit for the scale where proton degeneracy would have to enter the scenario. As the proton cannot degenerate in that way, the neutron star must enter its Quark-Star Gluon-Plasma phase transition at the $\frac{1}{2}R_e/Y$ scale, corresponding to a mass of $2Y.M_{Chandra}=9.7082\times10^{30}$ kg* or 4.854 solar masses. This marker is between the F-googol and the G-googol space quanta counter nexus coordinates.

This vortex manifested as a VPE concentration after the expanding universe had cooled to allow the universe to become transparent from its hitherto defining state of opaqueness and a time known as the decoupling of matter (in the form of the M_o seedling partitioned in m_c's) from the radiation pressure of the CMBR bosons.

Generally, when the gravitational inward pressure is larger than the thermal outward pressure for a star, then electron degeneracy can result in the atomic constituents of the star to break the electromagnetic force keeping the atoms electrons apart from the atomic nucleus. In the evolution of stars the nuclear fusion processes in the core of the star determine how the mass of the star will respond to the release of material of the star in the form of electromagnetic radiation and mass ejections. Once the nuclear fusion processes can no longer convert atomic elements in endothermic reactions at the iron limit, the exothermic reactions will reduce the star's mass to that of its core. Depending on the mass of this core, particular limits determine the fate of the star's core of either becoming a white dwarf in the Chandrasekhar limit of about 1.4 solar masses and increasing to 2-3 (Supernova SN2003fg~2.0) solar masses or the Tolman-Oppenheimer-Volkoff (TOV) limit of about 2.3 (Neutron Star GW170817) solar masses for a general range between 1.5 – 3 solar masses for neutron degenerate matter. A neutron stars mass increases with the rate of rotation by about 20% from a non-rotating state.

As the classical electron radius oscillates between the wormhole Weyl-radius of the QBBS as
$r_{ps}=\lambda_{ps}/2\pi = 1.59155\text{x}10^{-23}$ m*
and $R_e=k_e e^2/m_e c^2 = h\alpha/2\pi m_e c = 2.777..\text{x}10^{-15}$ m*;
the Compton constant $R_e m_e=h\alpha/2\pi c=\alpha L_{planck} m_{planck}=\alpha\sqrt{\{(hG_o/2\pi c^3)(hc/2\pi G_o)\}}$
$=\alpha\sqrt{\{h^2/4\pi^2c^2\}}=h\alpha/2\pi c=C_{compton}=R_{eeff}.m_{eeff}=2.580702\text{x}10^{-45}$ [mkg]* will determine this electronic oscillation between the gluon-neutrino kernel and the inner mesonic ring and the outer leptonic ring for the subatomic structure of a nucleon or hadron. In particular the effective charge radius of the proton of quark content u.d.u=KKIRK differing from the quark content of the neutron d.u.d=KIRKKIR by 1.328 MeV*
reduces the classical electron radius by the factor ½X to set
$R_{proton}=½XR_e= 0.85838\text{x}10^{-15}$ m* for an effective electron mass of
$m_{eeff}=C_{compton}/R_{eeff}=3.00648\text{x}10^{-30}$ kg* at that displacement in the classical electron oscillation. [Footnote 2]

At the scale of a protonic diameter $m_{eeff}=C_{compton}/XR_e=1.50324\text{x}10^{-30}$ kg*, showing that an increase of the electron's size will decrease its effective self-interacting electromagnetic mass, irrespective of the relativistic velocity of the electron.
https://www.academia.edu/39184674/The_Monopolar_Quantum_Relativistic_Electron_An_Extension_of_the_Standard_Model_and_Quantum_Field_Theory_Part_1_
https://www.academia.edu/40223805/A_Revision_of_the_Friedmann_Cosmology

The cosmology for the lower dimensional universe is described as the spacetime evolution of a Planck Black Body Radiator and so follows a thermodynamic process of a decreasing universal background temperature with increasing volume, due to the expansion of the universe.
The modular string-membrane dualities then couple the inversion displacement parameters of the QBBS and the micro-quantum scale of the instanton as a Weyl-Eps-wormhole in the supermembrane EpsEss evolution to the macro-quantum scale of the inflaton under utility of the ABCDEFGH googolplex spacetime quanta counters.

As the E-googol defines the quantum geometric template for the classical electron radius, rendered variable in the maximum of $R_e=2.777\text{x}10^{-15}$ m* and the minimum in the wormhole radius
$r_{ps}=\lambda_{ps}/2\pi=1.592\text{x}10^{-23}$ m*, the magnitude ratio
$R_E/R_e=\sqrt[3]{E})(\lambda_{weyl}/2\pi)/\{10^{10}\lambda_{ps}/360\}=\sqrt[3]{E})(\lambda_{weyl}/2\pi)/\{2\pi r_{ps}10^{10}/360\}=\{\sqrt[3]{E})/10^{10}\}\{360/2\pi\}$
$=\{2.158884299...\text{x}10^{27}\}\{180/\pi\}=3.43597108\text{x}10^{14}$ m*/$2.7777777\text{x}10^{-15}$ m*
$= 1.236949588...\text{x}10^{29}$ spacetime quanta.

The wave nature of matter is given by the de Broglie wavelength for matter in
$\lambda_{dB}=2\pi r_{dB}=h/p=h/m_{electron}v_{electron}$ for an elementary particle like the electron.
This is expressed for the particle nature of matter in the Compton wavelength
$\lambda_{compton}=2\pi r_{compton}=h/m_{electron}c$ and maximizing the velocity of the electron to lightspeed c.

As the classical electron radius is $R_e=k_e e^2/m_{electron}c^2=\alpha h/2\pi m_{electron}c=\alpha r_{compton}$, showing that increasing the size of the electron by a factor of 137 will define the light-matter interaction probability in the electromagnetic finestructure constant alpha for Compton radius $r_{compton}=R_e/\alpha=3.80686301\text{x}10^{-13}$ m*.

It defines the Compton constant $C_{compton}=R_e m_e=\alpha h/2\pi c=R_{ec}m_{ec}$ for the inverse proportionality between the mass and the radial size of a particle or system in quantum mechanics and where the subscript ec indicates the scale of the particle oscillation in between the boundary conditions for the electron as the maximum R_e and the minimum r_{ps}.
Further quantum mechanical extension of the size of the atomic nucleus then defines the 1st Bohr radius and the size of the hydrogen atom in multiplying the Compton radius by alpha as
$r_{Bohr1}=R_e/\alpha^2=5.2171943\text{x}10^{-11}$ m*

The quantum mechanical nature of the atom, so becomes encompassed in the interaction of the classical electron with the electromagnetic finestructure and in allowing the spacial extent of the electron to oscillate within its classical definition of its electromagnetic self-interaction.

The temperature evolution of the universal cosmology so conformally relates this scale of the electron as a classical particle of spacetime, but as derivative of the Dirac monopole as its point particular representative to the macro-quantum form in the GFEH-googolplex.

[Footnote 2]:
KKK-Kernel mass=Up/Down-HiggsLevel=3x319.66 MeV*= 958.99 MeV*, using the Kernel-Ring and Family-Coupling Constants.
Subtracting the Ring-VPE (3L) gives the basic nucleonic K-State as 939.776 MeV*. This excludes the electronic perturbation of the IR-OR oscillation.
For the Proton, one adds one (K-IR-Transition energy) and subtracts the electron-mass for the d-quark level and for the Neutron one doubles this to reflect the up-down-quark differential.
An electron perturbation subtracts one 2-2/3=4/3 electron energy as the difference between 2 leptonic rings from the proton's 2 up-quarks and 2-1/3=5/3 electron energy from the neutron' singular up-quark to relate the trisected nucleonic quark geometric template.
Proton m_p=u.d.u=K.KIR.K=(939.776+1.5013-0.5205-0.1735) MeV* = 940.5833 MeV* (938.270 MeV).
Neutron m_n=d.u.d=KIR.K.KIR=(939.776+3.0026-1.0410+0.1735) MeV* = 941.9111 MeV* (939.594 MeV).
This is the ground state from the Higgs-Restmass-Induction-Mechanism and reflects the quarkian geometry as being responsible for the inertial mass differential between the two elementary nucleons.
All ground state elementary particle masses are computed from the Higgs-Scale and then become subject to various finestructures.
[End of Footnote 2]

The nuclear densities for neutron stars are defined in the ylemic vortices of the Gamow-Hawking protostars or Gamow-Hawking micro black holes in the function their temperatures. The temperature of the background universe so defines the temperature an electron- or neutron degenerate neutron star will have in its evolutionary development at a later stage of the cosmic temperature evolution. The birth of population III stars as the earliest stars has been calculated to begin as the cores of galaxies as the cores of superclusters at a time marker defined in the superstring modulation of the wavelength of the instanton

$1/r_{ss}=2\pi\lambda_{ss}=6.283\text{x}10^{22}$ m* and so the size of a large galaxy manifesting so 6.64 million years after the QBBS.

The Milky Way galaxy as one of the oldest galaxies in the cosmogenesis formed in the Sarkar regime of general galactic evolution and when the baryon mass seedling could manifest in thew form of galaxies in the requirement for the Strominger extremal black hole evolution to have reached the Sarkar radius of 236.52 million light years. This galactic displacement scale matches the time period for a revolution of the local star system to complete a cycle of rotation about the center of the Milky Way galaxy.

n-cycle coordinate and time	Radius as size of the universe	Modulation factor	Inversion Radius	Cosmological Redshift	Temperature	Hawking Radius Ylem Radius Hawking micro-BH mass	Cosmological Significance
$2nq_o$=0.02803012 473.039 My	$R_{sarkar}=2G_oM_o/c^2$=4.47830347x10^{24}	1.62x10^{20}	3.62044x10^{-5}	5.0152	30.570 K*	7.3757x10^{-5} m* 0.29071 m* 2.9871x10^{22} kg*	dark matter galaxies from supercluster seed manifest honey-comb universal geometry baryon seed $m_{obaryon}=0.02803=M_o/M_H=2\Lambda_o/A_{dB}$
nq_o=0.01401506 236.520 My	$R_{sarkar}=G_oM_o/c^2$=2.23915174x10^{24}	4.05x10^{19}	1.81022x10^{-5}	7.4777	51.062 K*	4.4157x10^{-5} m* 0.37572 m* 1.7884x10^{22} kg*	Quasar wall - 1st protostars from supercluster seeds Deceleration parameter $q_o=½M_o/M_H=\Lambda_o/A_{dB}$
$½nq_o$=0.00700753 118.260 My	$R_{sarkar}=½G_oM_o/c^2$=1.11957587x10^{24}	1.01x10^{19}	9.0511x10^{-6}	10.967	85.578 K*	2.6347x10^{-5} m* 0.48641 m* 1.0671x10^{22} kg*	White Hole-Black Hole Sarkar modulation Birth of 1st galaxies like the Milky Way form as baryon seed for dark matter galaxies protostars manifest from ylem white hole-black hole coupling
3.93425x10^{-4} 6.63948 My	$r_{ss}=2\pi\lambda_{ss}$=6.283x10^{22}	3.19x10^{16}	5.07943x10^{-7}	49.421	358.05 K*	6.2973x10^{-6} m* 0.99494 m* 2.5504x10^{21} kg*	Modular wormhole perimeter White Hole upper limit as wormhole sourcesink E_{ps} begins to activate as black hole power sourcesink Ess dark matter galaxies geometry

The time period from 16 seconds to 21 minutes in the evolution of the universe encompasses a time for the Hawking micro black holes increasing in mass from 1.7x10^{11} kg* to 1.0x10^{14} kg* corresponding to their temperatures decreasing from 5.10x10^{12} K* to 8.82x10^{9} K*.
Setting the nuclear density as $\rho_{nuclearOR}=3m_c/4\pi R_e^3=3k_BT_{Hawking}/4\pi G_om_cR_{ylem}^2$ = 1.10545x10^{16} [kg/m^3]* then calculates the density of a neutron star exhibiting electron degeneracy at the temperature regimes given by the ylem radius.

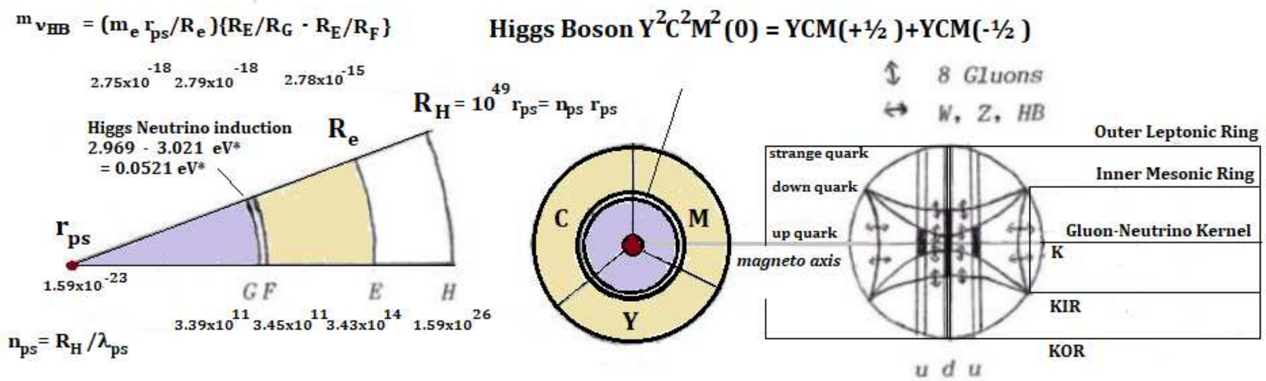
As in this formulation the gravitational parameter is partitioned in $G_om_c^2$=constant=$G(n)X^nM(n)Y^n=G(n)X^nm_cY^um_cY^v$= for superscripts u+v=n for $(XY)^n=1$, the mass evolution for the primordial nucleon $m_c=m_{planck}\alpha^9$=9.92472459x10^{-28} kg* must be considered. For the present time, the m_c primordial nucleon has attained the scale of the measured neutron mass in $m_cY^{npresent}$= 1.711753×10^{-27} kg*or $1.7053526 \times 10^{-27}$ kg_{SI}.

As the leptonic ring masses are integrated into the quarkian kernel masses, the measured masses for the electron, muon and tauon remain constant subject to their energy variation in the Compton constant $m_eR_e=h\alpha/2\pi c$. So the nuclear densities calculated in the early period of the cosmology will increase at later times as the effect of the mass evolution of the universe, transmuting Vortex-Potential Energy (VPE) as the UniPhysCon 'physicalized consciousness energy' of the original source energy for the creation event.

The leptonic outer ring (OR) for the electron degeneracy then defines the nuclear densities for electron degenerate neutron stars being born as the from the spacetime vortices defined by Hawking-Gamow micro black holes.

The mesonic inner ring inner (IR) reduces the scale of the classical electron radius by a factor of 1000 and defines the Higgs boson at that scale as the progeny of the RMP separated from the electron base scale in a factor of 100,000 as the dark matter particle of the cosmogenesis.

Higgs-Bosonic template for a Calabi-Yau wavequark proton KIR.K.KIR - u.d.u



The eight gluonic permutation states are the set: {WWW-WWB-WBW-BWW-BBW-BWB-WBB-BBB} between the radiative Eps-gauge photon self-state and the massive Ess-gauge anti-photon self-state.

The proton is stable as the M_o/m_c restmass seedling coupled to the electronic mass-quantum me via the XL-Boson superstring of unification gauge SEW.G of the HO(32) superstring class, manifesting via the hadron-mesonic X-Boson and the leptonic L-Boson at X-Boson time of t = 2.20×10^{-39} s*, an effective temperature of 2.145×10^{28} K* and an effective post-Planck radius of 1.051×10^{-31} m* for a mass of 3.36×10^{-12} kg* or 1.88×10^{15} GeV*

The Higgs Bosonic radius r_{HB} has a Compton-de Broglie mass at the Neutrino induction marker G for $m_{HB}=h/2\pi cr_{HB}$ = 1.279×10^{-25} kg* or 71.636 GeV* at time t_G = 1130 s* increasing to $m_{HB}Y^{np}$= 2.206×10^{-25} kg* or 123.55 GeV* or 123.09 GeV as a mean value between markers F at 1150 s* and F' at 1110 s* for a Higgs Boson mass interval m_{HB}:{ 1.268-1.290-1.314}$\times 10^{-25}$ kg* or {71.02 -72.27-73.61} GeV* increasing to {122.49 -124.64 - 126.95}GeV* for a present cycle time coordinate of n_p=1.132711... for an EMMI age of the universe of 19.12 Gy

The mesonic inner ring defines the neutron degeneracy for quark or proton stars coupled to the primordial neutron decay given in the inversion scale for the radial size of the universe as defined in the googolplex E-FGF' in modular membrane mirror duality with the classical electron scale. As the strange wave quark is a resonance of the down wave quark in the oscillation potential between the kernel up wave quark K and the outer ring OR for the Compton constant and the energy scale for the classical electron; the neutron degeneracy is given in the entire range from the gluon-neutrino kernel of the QBBS-Dirac monopole singularity to the inner bound of the dark matter particle RMP at the 10^{-5} fermi scale.

For electron degeneracy characteristic neutron star radii are in the range of the Compton radius R_e/α to its modulation in $R_e/2\pi\alpha$ to the modulated electron radius $2\pi R_e$ as Hawking radii for micro black holes for temperatures from 5.92×10^9 K* to 3.72×10^{10} K* to 1.29×10^{11} K* with typical neutron star radii as ylem radii from 4,045.5 m* to 10,143.3 m* to 18,899.0 m* for respective neutron star masses from 1.64×10^{30} kg as 0.819 M_{sun} to 4.11×10^{30} kg* as 2.05 M_{sun} to 7.65×10^{30} kg* as 3.83 M_{sun} respectively.

The Chandrasekhar limit for white dwarves is approximated by the mass quantization $M=\Sigma m_{ss}=\Sigma hf_{ss}/c^2$ and modulation $M/\Sigma m_{ss}=h/m_{ss}c^2=hf_{ps}/h=f_{ps}|_{mod}=3\times10^{30}$ as 1.50 M_{Sun} for a temperature of 1.98×10^{10} K* for a Hawking black hole micro-mass of 4.60×10^{13} kg* and a Gamow-Hawking ylem radius of 7,407.7 m*

The charge radius of the proton is calculated as proportional to the classical electron radius as $\frac{1}{2}XR_e=0.8583806\times10^{-15}$ m* reduced from $\frac{1}{2}R_e=1.388889\times10^{-15}$ m* and reduced from $XR_e=1.7167606\times10^{-15}$ m* as Hawking radii for the micro black holes for respective electron masses of 3.0064778×10^{-30} kg* and 1.858105×10^{-30} kg* and 1.50324×10^{-30} kg*.

The nuclear densities for neutron degeneracy with increasing pressure from the surface density to the core density then calculate for respective Hawking radii for the micro black holes as:

$\rho_{nuclearOR}=3m_c/4\pi R_e^3=3k_BT_{Hawking}/4\pi G_o m_c R_{ylem}^2=1.105\times10^{16}$ [kg/m³]* for a temperature 8.117×10^{11} K* and ylem mass 1.92×10^{31} kg* as 9.60 M_{sun}
$\rho_{nuclearX}=3m_cY^3/4\pi R_e^3=3Y^3k_BT_{Hawking}/4\pi G_o m_c R_{ylem}^2=4.683\times10^{16}$ [kg/m³]* for a temperature 1.313×10^{12} K* and ylem mass 2.44×10^{31} kg* as 12.20 M_{sun}
$\rho_{nuclear\frac{1}{2}}=24m_c/4\pi R_e^3=24k_BT_{Hawking}/4\pi G_o m_c R_{ylem}^2=8.844\times10^{16}$ [kg/m³]* for a temperature 1.623×10^{12} K* and ylem mass 2.71×10^{31} kg* as 13.57 M_{sun}
$\rho_{nuclear\frac{1}{2}X}=24m_cY^3/4\pi R_e^3=24Y^3k_BT_{Hawking}/4\pi G_o m_c R_{ylem}^2=3.746\times10^{17}$ [kg/m³]* for a temperature 2.627×10^{12} K* and ylem mass 3.45×10^{31} kg* as 17.26 M_{sun}

n-cycle coordinate and time	Radius as size of the universe	Modulation factor	Inversion Radius	Cosmological Redshift	Temperature	Hawking Radius Ylem Radius Hawking micro-BH mass	Cosmological Significance
2.45458 $\times10^{-13}$ 1.5130 days	3.92162×10^{13}	0.0124	3.17040×10^{-16}	2.0184×10^6	5.9229×10^9 K*	3.80686×10^{-13} m* 4,045.503 m* 1.5418×10^{14} kg*	$R_{Hawking}=R_e/\alpha$=Compton radius Electron degeneracy surface for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=1.64\times10^{30}$ kg*/0.819M_{sun}

1.44329×10^{-13} 76,863.6 s* 21.35 hours	2.30591×10^{13}	4.299×10^{-3}	1.86419×10^{-16}	2.6322×10^{6}	8.8207×10^{9} K*	2.5562×10^{-13} m* 4,938.271 m* 1.0353×10^{14} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=2.00 \times 10^{30}$ kg*/1..000M_{sun}
4.89513×10^{-14} 26,069.4 s* 7.24 hours	7.82083×10^{12}	4.945×10^{-4}	6.32267×10^{-17}	4.5198×10^{6}	1.9847×10^{10} K*	1.1361×10^{-13} m* 7,407.407 m* 4.6011×10^{13} kg*	Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{R_e\}^3$ $(1.105\text{-}1.907) \times 10^{16}$ [kg/m^3]* $R_{ylem}=\sqrt{\{3k_BT/4\pi G_o m_c \rho_{nuc}\}}$ for 1.5 M_{Sun} $M=\Sigma m_{ss}=\Sigma hf_{ss}/c^2$ mass quantization for space quanta count $M/\Sigma m_{ss}=h/m_{ss}c^2=hf_{ps}/h=f_{ps}\|_{mod}=3 \times 10^{30}$ as 1.50 M_{Sun}
2.11706×10^{-14} 11,274.58 s* 3.132 hours	3.38237×10^{12}	9249×10^{-5}	2.73445×10^{-17}	6.8728×10^{6}	3.7215×10^{10} K*	6.05875×10^{-14} m* 10,143.34 m* 2.4538×10^{13} kg*	$R_{Hawking}=R_e/2\pi\alpha$ = Compton radius Ess modulation Electron degeneracy core for neutron stars $R_{ylem}=R_{curv}$ for $M_{ylem}=4.11 \times 10^{30}$ kg*/2.054M_{sun}
4.02765×10^{-15} 2144.96 s* 32.749 min	6.43488×10^{11}	3.348×10^{-6}	5.20221×10^{-18}	1.5757×10^{7}	1.2919×10^{11} K*	1.7453×10^{-14} m* 18,899.00 m* 7.0686×10^{12} kg*	$R_{Hawking}=2\pi R_e$ $R_{ylem}=R_{curv}$ for $M_{ylem}=7.65 \times 10^{30}$ kg*/3.827M_{sun}
2.160062×10^{-15} 1150.36 s* 19.173 min	$R_F=\sqrt[3]{F}(\lambda_{weyl}/2\pi)=3.45107750 \times 10^{11}$	9.6×10^{-7}	$R_f=2.789990 \times 10^{-18}$	2.15163×10^{7}	2.0614×10^{11} K*	1.0938×10^{-14} m* 23,872.87 m* 4.4299×10^{12} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=9.67 \times 10^{30}$ kg*/4.834M_{sun}
2.122808×10^{-15} 1130.52 s* 18.8420 min	$R_G=\sqrt[3]{G}(\lambda_{weyl}/2\pi)=3.39155801 \times 10^{11}$	9.3×10^{-7}	$R_g=2.741872 \times 10^{-18}$	2.17042×10^{7}	2.0885×10^{11} K*	1.0796×10^{-14} m* 24,029.28 m* 4.3724×10^{12} kg*	$R_{ylem}=R_{curv}$ for $M_{ylem}=9.73 \times 10^{30}$ kg*/4.866M_{sun}
2.084198×10^{-15} 1109.96 s* 18.499 min	$R_{F'}=\sqrt[3]{F'})(\lambda_{weyl}/2\pi)=3.32987275 \times 10^{11}$	9.0×10^{-7}	$R_{f'}=2.69200 \times 10^{-18}$	2.19044×10^{7}	2.1175×10^{11} K*	1.0648×10^{-14} m* 24,195.54 m* 4.3125×10^{12} kg*	Primordial neutron decay: $\lambda_{F'}\text{-}2\pi\lambda_{RMP}$ (1109.96-229.82) s* = 880.14 s*/879.28 s from Higgs Boson with RMP template $R_{ylem}=R_{curv}$ for $M_{ylem}=9.80 \times 10^{30}$ kg*/4.900M_{sun}
8.75370×10^{-16} 466.186 s* 7.770 min	1.39856×10^{11}	1.6×10^{-7}	1.13065×10^{-18}	3.89284×10^{7}	4.05858×10^{11} K*	5.55556×10^{-15} m* 33,497.33 m* 2.2500×10^{12} kg*	$R_{Hawking}=2R_e$ $R_{ylem}=R_{curv}$ for $M_{ylem}=1.3566 \times 10^{31}$ kg*/6.78M_{sun}

4.315415×10^{-16} 229.821 s* 3.8304 min	$R_{neutrondecay}=6.8946323\times10^{10}$	3.8×10^{-8}	$2\pi\lambda_{RMP}=4\pi^2R_{RMP}=5.57389763\times10^{-19}$	4.81381×10^{7}	6.89874×10^{11} K* $M_{Hawking}=2.792\times10^{37}$ $T_{Hawking}=3.2703\times10^{-14}$	3.2684×10^{-15} m* 43,672.54 m* 1.3237×10^{12} kg*	Beginning of neutron decay from Higgs Boson with RMP template $R_{ylem}=R_{curv}$ for $M_{ylem}=1.77\times10^{31}$ kg*/$8.844M_{sun}$
3.473914×10^{-16} 185.006 s* 3.083 min	5.550187×10^{10}	2.5×10^{-8}	4.486994×10^{-19}	5.36526×10^{7}	8.11715×10^{11} K*	2.7778×10^{-15} m* 47,372.40 m* 1.1250×10^{12} kg*	$R_{Hawking}=R_e$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{R_e\}^3$ $(1.105\text{-}1.907)\times10^{16}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=1.92\times10^{31}$ kg*/$9.593M_{sun}$
1.828887×10^{-16} 97.398 s* 1.623 min	2.921968×10^{10}	6.9×10^{-9}	2.362236×10^{-19}	7.39446×10^{7}	1.3134×10^{12} K*	1.7168×10^{-15} m* 60,257.94 m* 6.9529×10^{11} kg*	$R_{Hawking}=XR_e$=Protonic diameter Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{XR_e\}^3$ $(4.683\text{-}8.077)\times10^{16}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=2.44\times10^{31}$ kg*/$12.202M_{sun}$
1.378658×10^{-16} 73.422 s* 1.224 min	2.202648×10^{10}	3.9×10^{-9}	1.780709×10^{-19}	8.51671×10^{7}	1.6234×10^{12} K*	1.3889×10^{-15} m* 66,994.07 m* 5.6250×10^{11} kg*	$R_{Hawking}=½R_e$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{½R_e\}^3$ $(8.844\text{-}15.253)\times10^{16}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=2.71\times10^{31}$ kg*/$13.566M_{sun}$
7.257512×10^{-17} 38.650 s*	1.159515×10^{10}	1.1×10^{-9}	9.37398×10^{-20}	1.17383×10^{8}	2.6268×10^{12} K*	8.5838×10^{-16} m* 85,218.27 m* 3.4764×10^{11} kg*	$R_{Hawking}=½XR_e$ Nuclear density $\rho_{nuc}=3m_cY^n/4\pi\{½XR_e\}^3$ $(3.746\text{-}6.461)\times10^{17}$ [kg/m^3]* $R_{ylem}=R_{curv}$ for $M_{ylem}=3.45\times10^{31}$ kg*/$17.257M_{sun}$
2.9962×10^{-17} 15.957 s*	4.78696×10^{9}	1.9×10^{-10}	3.86997×10^{-20}	1.82690×10^{8}	5.1002×10^{12} K*	4.42097×10^{-16} m* 118,744.56 m* 1.7905×10^{11} kg*	$R_{Hawking}=R_e/2\pi$ Ess modulation Neutron degeneracy $R_{ylem}=R_{curv}$ for $M_{ylem}=4.81\times10^{31}$ kg*/$24.05M_{sun}$

Primordial Neutron decay from the Higgs Boson – RMP Dark Matter quantum geometric blueprint $Y^2M^2C^2$

As the universe reached an age between 1130-1150 seconds, a 20 second period from the 18 minute 50 second marker manifested primordial radioactive beta-minus decay in the decomposition of a lefthanded ylemic neutron into its constituent parts of a lefthanded proton with a lefthanded electron and a righthanded antineutrino. As this process is a weak nuclear interaction (WNI) a coupling to the strong nuclear interaction (SNI) was made manifest in the ylemic neutron star's core transforming the quark content of the ylemic neutron in the interaction with gluons and crystallizing the force carrying bosons for the WNI and the SNI as weakon bosons (W^- for matter and W^+ for antimatter and Z^o for uncharged matter) and gluons respectively.

Neutron decay depends on the relative movement of the neutron with respect to their environment. The measured discrepancy in the mean lifetime of free neutrons of about 9 seconds using either a 'proton trap bottle' or a 'proton beam' counter of 879 and 888 seconds respectively, so engages the definition of the RMP as being coupled to the Higgs Boson in the matter template YCM. The decoupling of the RMP from the Higgs Boson introduced the colourless Graviphoton as the spin conserver in the UfoQR to preserve the spin neutrality of the Higgs Boson in the lefthanded RMP with the righthanded Graviphoton.

The RMP is the dark matter particle in the Higgs field and is defined in the units of the gravitational parameter as a space quanta volumar acted upon by the time differential of frequency df/dt as a form of quantum spin angular acceleration.

The primordial neutron decay in the first 20 minutes of the QBBS universe became triggered in the initial boundary conditions defined in the space quanta counters E, F and G, with the manifestation of the Dirac monopole singularity as the wavelength $\lambda^*=c/f^*=4.087933536\text{x}10^{14}$ m* for radius $R^*=\lambda^*/2\pi=R(n^*=H_ot^{*\prime}=4.072259032\text{x}10^{-13})=6.506148293\text{x}10^{13}$ m* for a time $t^{*\prime}=216{,}871.61$ s* or 2.51 mean solar days into the expansion and thermodynamic evolution of the universe.

Initial Boundary Conditions from Membrane Timespace and the Matter-Antimatter Coupling for the QBBS

The Timespace of imaginary space, created the initial boundary condition for the QBBS to manifest in the instanton-inflaton quantum entangled coupling in a higher dimensional parameter space of the mathimatia. Five string classes transformed into each other under properties of modular dualities in the string epoch beginning with the 'bounce' of the Planck length at a then defined timespace coordinate of $\sqrt{\alpha}L_{planck}/c=\sqrt{\alpha}\ t_{planck}=\sqrt{\{(hG_o/2\pi c^5)(2\pi k_ee^2/hc)\}}=\sqrt{\{G_ok_ee^2/c^6)\}}=e/c^3=5.9498383\text{x}10^{-45}$ s* for the finestructure unification condition $\{G_ok_e=1\}$ between the electromagnetic and gravitational interactions; and ending at the instanton of $t_{weyl}=3.333\text{x}10^{-31}$ s*.

The heterotic classes allow the 5 bosonic strings to emerge from a 26 dimensional boson string space, where 10 clockwise string rotations are emergent in a 10-dimensional string spacetime and where 16 anti-clockwise rotation are suppressed.

The Planck boson in timespace then is known as the Planck string of class I of open strings at a time $t_{planck}=2\pi r_{planck}/c=4.376\text{x}10^{-43}$ s*; the second a closed monopole string of self-dual class IIB at a time $t_{monopole}=2\pi r_{monopole}/c=1.537\text{x}10^{-40}$; the third the closed XL-Boson heterotic class HO(32) at time $t_{XL}=2\pi r_{XL}/c=2.202\text{x}10^{-39}$ s*; the fourth the closed Ecosmic Ray-Boson string of class IIA at time $t_{Ecosmic}=2\pi r_{Ecosmic}=6.618\text{x}10^{-34}$ s* and the fifth the closed heterotic class HE(64) of the instanton.

A 'false Higgs Boson' vacuum at a time interval from $t_{dBmin}=G_oM_o/c^3n_{ps}=4.672\text{x}10^{-33}$ s* to $t_{dBmax}=\sqrt{\alpha}t_{weyl}=2.847\text{x}10^{-32}$ s* preceded the instanton in the timespace to image the start of the timespace string epoch in the 'bounce' or quantum fluctuation of the Planck time in the 'quantum oscillation' of the Weyl time.

Following the creation of spacetime in the instanton, the Weyl parameters of the spacetime could integrate and manifest the primary source energy definitions of the mathimatia parameter space and using the string modular properties for that purpose. One of those properties relates to the modular inversion of displacement in string T-duality, strongly associated with Mirror duality to connect the shadow-mirror universe Abba-Khaibit to the physicalized universe Friedmann-Baab.

The quantum entanglement between the two universes under modular string-membrane duality assumes the form of a supermembrane manifesting as a surface information agent in the two-sidedness of the Witten-Maria mirror of the 11-dimensional boundary between Khaibit-Universe-Energy-Primary-Source-Sink or Eps and Riemann-Universe-Energy-Secondary-Sink-Source or Ess.

The supermembrane EpsEss is the coupled under modular string-membrane duality in:

1. $EpsxEss=hf_{ps}xhf_{ss}=h^2$ with quantum energies $E_{ps}=hf_{ps}=hc/\lambda_{ps}= hc/2\pi r_{ps}=m_{ps}c^2=kT_{ps}=1/e^*$ and $E_{ss}=hf_{ss}=h/c\lambda_{ss}= 2\pi h/cr_{ss}=m_{ssc}{}^2=kT_{ss}=h^2e^*$
2. $Eps/Ess=hf_{ps}/hf_{ss}=f_{ps}{}^2=1/f_{ss}{}^2$ with the inversion displacement coupling $f_{ps}\lambda_{ps}=c=1/\{f_{ss}\lambda_{ss}\}$ by definition of modular T-Mirror duality
3. and descriptive for $9x10^{60}$ frequency permutation states for the universal physicalized consciousness quantum, the Uniphyscon defining Dirac's monopole
4. The wormhole radius $r_{ps}=\lambda_{ps}/2\pi$ and wavelength $\lambda_{ps}=2\pi r_{ps}=10^{-22}$ m* for a high quantum energy E_{ps} and a small winding string mode
5. The anti-wormhole radius $r_{ss}=1/r_{ps}=2\pi\lambda_{ss}=2\pi x10^{22}$ m* and wavelength $\lambda_{ss}=2\pi r_{ss}$ for a low quantum energy E_{ss} and a great winding string mode

Quantum mechanics of a string physics of the very small so is characterized by a small wavelength and radius r of atomic and subatomic structures, but this radius r is shown to be equivalent to a classical mechanics of extended objects of inverted radius 1/r in terms of the winding modes interchanging under T-duality. A low winding number relative to a small radius $r_{ps}=1/R$ can describe a physics equivalent to that physics of the same radius r with a large winding number, as the unwinding of the multiplicity of the perimeter of the circle radius r, would increase the radius $r_{ps}=1/R$ to a multiple of 1/R and so increase the radius to $2\pi n.r_{ps}=R=r_{ss}$ of classical objects. For the supermembrane $E_{ps}E_{ss}$, the winding number becomes the coupling constant $E_{ps}/E_{ss}=f_{ps}/f_{ss}=9x10^{60}$ as the maximum permutation frequency state as the self-state or resonance eigenvalue of the unification physics connecting the microcosmos of quantum relativity to the classical universe of general relativity with special relativity.

The Möbian connectivity of the 11-dimensional Witten-Maria mirror manifests in the timespace of the superstring epoch in the form of the quantum relative blueprints and the doubling of a Möbian surface in changing the one-sidedness to a two-sidedness in a double rotation or twist extending a 360 degree rotation to a 720 degree rotation to return to an initial state, known as a spinor.

A two-sided ring of width w and radius r so has two surface areas $2\pi rw$ as an inner and an outer. Cutting the ring and twisting one end by 180 degrees, before gluing it back to the other end of the ring will connect the previously separated surfaces to one surface of total length $4\pi r$ and surface area $4\pi rw$. A spinor pointing perpendicular to the width would then change direction after one full rotation because of the twist and require and more rotation to return to the initial starting position. Righthandedness becomes left-handedness after a 360 degree rotation and becomes righthanded again after another 360 degree rotation.

This property of a geometric topological transformation from a orientable geometric object like a ring into a non-orientable object like a Möbius strip became the basis for the quantum geometry of fundamental particles blueprinted in the supersymmetry of the timespace.

Five gauge Goldstone bosons as the 'force carrying' field particles broke the supersymmetry of the unification of five interaction fields:

#	Gauge Boson	Colour Charge	Spin	Field
1	Eps-Photon	Cyclic RGB	+1	EMI
2	Ess-Antiphoton	Anticyclic BGR	+1	WNI
3	Graviton	Anticyclic BGR	-2	GI
4	Gluon	Cyclic RGB	+1	SNI
5	Restmass-Photon	Cyclic $Y^2C^2M^2$	-1	EMMI
6	Higgs-Boson	Cyclic $Y^2C^2M^2$	0	EMMI
	Dirac Monopole Mirror			
7	Anti-Higgs Boson	Anticyclic $M^2C^2Y^2$	0	Imaginary EMMI
8	Anti-Restmass-Photon	Anticyclic $M^2C^2Y^2$	+1	Imaginary EMMI
9	Anti-Gluon	Anticyclic BGR	-1	Imaginary SNI
10	Anti-Graviton	Cyclic RGB	+2	Imaginary GI
11	Ess-Photon	Cyclic RGB	-1	Imaginary WNI
12	Eps-Antiphoton	Anticyclic BGR	-1	Imaginary EMI

The cyclic right-handed Eps-Photon of Monopolar Radiation EMMR for the long-range Electromagnetic Interaction (EMI) is known as the 'virtual' photon of U(1)-SU(2)-SU(3) Unitary gauge symmetry of the Standard Model of particle physics combining Quantum Field Theory (QFT) in Quantum Electrodynamics (QED) with Quantum Chromodynamics (QCD). Its anti-particle would so be an anticyclic left-handed Ess-Photon in the supersymmetry of the Unified Field of Quantum Relativity (UFoQR).

The Quantum Relativity derives from the geometric topology creating and defining the elementary particle and gauge bosons in their quantum geometry in the timespace and preceding the string-membrane epoch in the mathimatia. The cyclic RGB on one side of the Möbian strip would interact with its own image of the one-sidedness, however separated by the point-circle of the one-dimensional thickness of the Möbian geometry in the spacelessness or imaginary space of timespace.

The self-intersection of the Eps-Photon with its antistate of the Ess-Antiphoton through a membrane mirror of no thickness would mix the Red-Green-Blue cyclic colour triplet on one side of the mirror as a cyclic Eps rotation RGB=GBR=BRG in three successive 120 degree angular displacements. Relative to Ess, this movement would be identical in the quantum self-relativity of rotating from RGB to GBR to BGR, but relative to the other side of the mirror the movement would be anticyclic.

The colour charge triplet RGB is defined in the parameters of EMR as Planck's Law E=hf and 'light' and in parameters of mass as Einstein's Law $E=mc^2$ or 'dark'. Electromagnetically Red, Green and Blue in equal proportions result in in the colour White and colour in the matter of paint in equal proportions result in the colour Black in thew colour charge triplet Yellow-Cyan-Magenta or YCM.

In the SU(3) gauge symmetry of QCD, the eight forms of the gluon, transmitting the force of the strong nuclear interaction reduce to one gluon agent in 8 and 4 permutation states.

For hadrons, like nucleons like the proton and the neutron, and constructed by three quarks, the eight gluon permutations transform a pure Black triplet into a pure White triplet in the set: {BBB+BBW+WBB+BWB+WBW+WWB+BWW+WWW}. For mesons and other quark-antiquark state particles the four gluon permutation states are the set: {BB+BW+WB+WW}. The primary colour charge triplet RGB then forms a radiation-matter interaction super template with the secondary colour charge triplet YCM in the Black-White resonances given in the colour-anticolour couplings Red+Cyan=W or B and Green+Magenta= W or W and Blue+Yellow=W or B via E=hf for W or $E=mc^2$ for B respectively.

The original YCM blueprint for matter was created by a half-rotation in the 60°-120° sector where the colour charge interaction (R+G)(G+B)(B+R)=YCM=CMY=MYC, was followed by the second half-rotation in the 240°-300° sector from the inflexion point of 180° manifesting in spacetime as the Möbian twist of 180° to change the orientability of the Möbian topology to non-orientable. The colour charges of both the self-relative sources Eps and Ess inflexed to Blue-Green-Red to give the antimatter template (B+G)(G+R)(R+B)=CYM=YMC=MCY.

At the completion of the 360° rotation, only the primary gauge photon Eps inflected back to its starting position of a cyclic right-handedness, The secondary gauge photon Ess broke the gauge supersymmetry in continuing with its cyclic right-handedness so creating the necessity for the birth of the graviton as a spinor of double integer spin to reset the gauge symmetry in the timespace. This resulted in the suppression of the antimatter template MCY as the mirror of the mass eigenstate to the eigenstate of the BGR anti-EMMR blueprint. The breaking of the gauge symmetry at the inflexion points of 0°-180°-360° differentiated the even π–nodes at 0 and 2π radians from the odd π-nodes at π radians in defining the even nodes in RGB and as an anti-neutrino template $R^2G^2B^2$ and the odd nodes in BGR and as neutrino template $B^2G^2R^2$.

The original 'short-range' wave function for the EMMI of quantum spin +1 at the origin with the original wave function for the Anti-EMMI of quantum spin -1 and inflecting at the 180°-π node in the UFoQR as UFoQR(x)=sin(x)+sin(-x), now took the 'long-range' form UFoQR(x)=sin(3x/2)-cos(3x/4) in Eps continuing to inflect at odd π-nodes and intersecting with the graviton wave function in lieu of the now suppressed Anti-EMMI wave function, effectively retracing the path of Eps with a phase shift of 2π or 360°.

The combined wave function of the EMI and the GI then repeats its waveform in a periodicity of 8π radians or 1440° and intersects in 12 coordinates to define the materialization of particles and anti-particles in the combined wave path of $4\lambda_{ps}$ or four times the Weyl wormhole perimeter manifesting in the QBBS spacetime of the instanton-inflaton.

The 2nd intersection or current node in the UFoQR then defines a $Y^2C^2M^2$ template for the Higgs Boson of 0 spin and the 4th current junction defines the Anti-Higgs Boson of 0 spin as the $M^2C^2Y^2$ blueprint. As the coordinates for the 1st and 2nd, the 3rd and 4th to the 5th junction nodes are 120° and 288.5° and 360° and 431.5° and 600° respectively to encompass the Weak Nuclear Interaction (WNI) part of the UFoQR in coupling the matter loops to the antimatter loops; two additional $Y^2C^2M^2$ and $M^2C^2Y^2$ templates are made manifest as the blueprints for the Restmass-Photon RMP of spin=-1 at the 200° coordinate and the Anti-RMP of spin=+1 at the 520° coordinate.

The templates for the creation of particles in the spacetime from the timespace so allows the bosonic integral boson-spins to bifurcate into fermionic half-integer spins for any YCM or MCY created particle pairs, such as a ylemic YCM Gamow neutron boson of spin=+1 splitting into two neutrons of spin=+½ in conjugate or parallel action of a ylemic MCY Gamow anti-neutron boson with spin=-1 splitting into two fermionic neutrons of spins -½-½. But this standard scenario of the Big Bang cosmology infers the equal status between matter and antimatter for the cosmogenesis.

The antimatter template MCY remains suppressed as a function of the anti-EMMI template, which also internalizes the anti-RMP and the anti-Higgs bosons into the UFoQR. So it is the Higgs Boson which manifests the elementary particles of the cosmogenesis in splitting its $Y^2C^2M^2$ matter template into a ylemic YCM Gamow neutron pair with opposite spins +½-½=0. This gives the reason as to why no normally occurring antimatter is observed in the universe, apart from the process of pair-creation defined in the UfoQR between junction nodes 8-9-10 at coordinates of -528.5°-360°-191.5°.

The graviton must have spin 2 as a consequence of quantum angular momentum conservation.

Before spacetime creation in the instanton of the quantum Big Bang, the transformation of the five string classes manifested in the inflaton using a prior supersymmetry between matter- and antimatter templates., represented in say sinx+sin(-x)=0 and where the positive region becomes a quantum geometric matter conformal mapping and the negative region becomes its conjugative for antimatter. As the linearization of the circle inflects at 180 degrees, matter and antimatter become defined in adjacent clockwise and anticlockwise semi cyclicities.

If now the arbitrary boundaries are defined in some unitary interval between 0 and 360 degrees or [-∞,0,+∞] or [-1,0,+1] or [0,½,1] or [-(X+1),-½,X]; then the left boundary dynamics of say righthandedness cancels the right boundary dynamic of left-handedness throughout the 2 semi cycles, say described in a

Möbian connectivity and topology of surface non-orientability in a conformal mapping of a 2D surface onto a 11D supermembrane in a membrane-mirror space.

After the completion of a full cycle, the matter- and antimatter templates exist in the membrane space of the inflaton, say as a supersymmetry between the righthanded electromagnetic monopolar radiation (EMMR) and its antistate in a lefthanded electromagnetic monopolar antiradiation. This supersymmetry between radiative self-states precedes any possible supersymmetry between the matter and antimatter blueprints, as the dynamic of the EMMR eigenstate defines the former as a secondary manifestation of potential manifestation, once the instanton of spacetime creation supersedes that of the prior string-brane epoch.

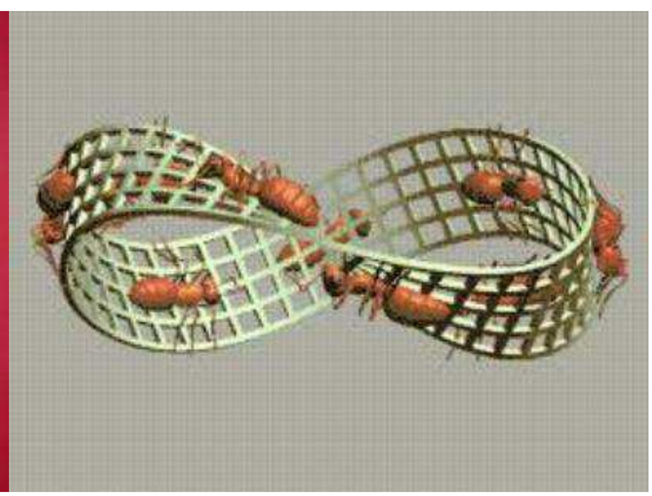
To realize the matter-antimatter potential, the completion of the full EMMR cycle breaks its own supersymmetry in the exchange of the right- and left boundary and initial conditions. The original righthanded (Weyl-gauge photon say of the left mirror) now situated at the right mirror extends the unitary interval towards the positive abscissa (aleph null enumerability) and inflects its anticlockwise parity into its original clockwise parity or chirality.

The original Weyl-antiphoton from the right mirror, now situated at the left mirror retraces the path of the Weyl-gauge photon however and so does not inflect and so creates the necessity to negate two clockwise quantum spins by a doubled anticlockwise spin angular momentum.

This demands the birth of quantum gravity and of its gauge agent of the graviton in the formation of a new universal wavefunction traversing in the opposite direction of the now twinned electromagnetic monopolar propagation of the original emmr supersymmetry.

A consequence of this 'changing of the fundamental supersymmetry' becomes the restriction of any matter-antimatter symmetry to become confined to the concept of pair production in the presence of existing matter or antimatter in Nonparity.

Defining matter to couple in a Goldstone gauge boson form to the original Weyl-photon (RGB) then forces the Weyl-antiphoton (anticyclic BGR) to suppress the antimatter (MCY anticyclic to matter YCM) template in lieu of a 'twinned' emergent blueprint known as the scalar 0-spin Higgs Boson ($Y^2C^2M^2$).



Imagine a Moebian strip without thickness und so restricted to be two dimensional. The perimeter of the quasi-inner ring so defines a self-intersection with its quasi-outer ring and depicts half of the total 2D-space of the Möbius strip for the inflection at 180 degrees. Then the Möbian strip breaks its own non-orientable nature and symmetry to create the 3rd dimension as a form of the Dirac string rotating in the 2-dimensional XY-plane to manifest the orthogonal z-direction in the torque of the angular momentum vector.

The second parameter space can now become orientable (without the Möbian twist of 180 degrees) and the self-relativity of the first part becomes now 3-dimensional relative and allows a new mixing of the tripartite sectors of the quantum chromodynamics of the constituent Goldstone bosons. From this point in the cosmogony onwards an older non-manifested matter antimatter supersymmetry can eventuate in the observed pair-production, being otherwise suppressed by the earlier radiation-antiradiation supersymmetry described.

The Higgs boson with a scalar Higgs scalar neutrino in the conformal mapping of the QBBS onto the cosmology

As the universe reached an age between 1130-1150 seconds, a 20 second period from the 18 minute 50 second marker manifested primordial radioactive beta-minus decay in the decomposition of a lefthanded ylemic neutron into its constituent parts of a lefthanded proton with a lefthanded electron and a righthanded antineutrino. As this process is a weak nuclear interaction (WNI) a coupling to the strong nuclear interaction (SNI) was made manifest in the ylemic neutron star's core transforming the quark content of the ylemic neutron in the interaction with gluons and crystallizing the force carrying bosons for the WNI and the SNI as weakon bosons (W^- for matter and W^+ for antimatter and Z^o for uncharged matter) and gluons respectively.

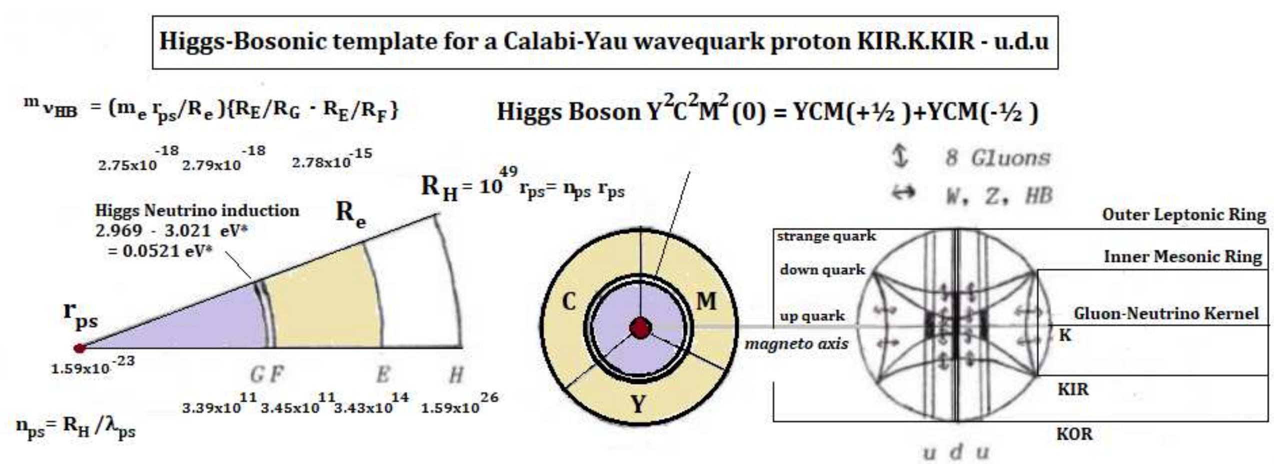
The Riemann hyperspheres of the instanton-inflaton evolutionary light path correspond to the quantum geometry inherent in the QBBS

$R_E=\sqrt[3]{E})(\lambda_{weyl}/2\pi)=3.43597108\text{x}10^{14}$ m* for a time
$t_E=n_E/H_o=2.1506\text{x}10^{-12}/H_o=1{,}145{,}323.7$ s* or 318.145 hours
and a temperature $T_E=1.163\text{x}10^9$ K*from $T(n)=\sqrt[4]{\{H_o^3M_o/1100\pi^2\sigma_{SB}\}.\{(n+1)^2/n^3\}}$ corresponds to $R_e=2.7777\text{x}10^{-15}$ m* in the ratio $R_e/R_E=8.0844\text{x}10^{-30}$

$R_F=\sqrt[3]{F})(\lambda_{weyl}/2\pi)=3.45107750\text{x}10^{11}$ m* for a time $t_F=n_F/H_o=2.1601\text{x}10^{-15}/H_o=1150.36$ s* or 19.17 minutes and a temperature $T_E=2.0614\text{x}10^{11}$ K* corresponds to $R_{HBlower}=R_e\{R_F/R_E\}=2.789990\text{x}10^{-18}$ m* in the upper bound for the Higgs Boson HB
for a Compton mass $m_{HBlower}=h/(2\pi cR_{HBlower})=1.26766\text{x}10^{-25}$ kg* or 71.020 GeV*
increasing to $71.020(Y^{np})=$ 122.491 GeV* for $n_p=1.132711$

$R_G=\sqrt[3]{G})(\lambda_{weyl}/2\pi)=3.39155801\text{x}10^{11}$ m* for a time
$t_G=n_G/H_o=2.1228\text{x}10^{-15}/H_o=1130.52$ s* or 18.84 minutes and a temperature $T_E=2.0885\text{x}10^{11}$ K*
corresponds to $R_{HBmean}=R_e\{R_G/R_E\}=2.741872\text{x}10^{-18}$ m* in the mean mirror value for the Higgs Boson
for a Compton mass $m_{HBmean}=h/(2\pi cR_{HBmean})=1.28991\text{x}10^{-25}$ kg* or 72.266 GeV*
increasing to $72.266(Y^{np})=$ 124.640 GeV* for $n_p=1.132711$

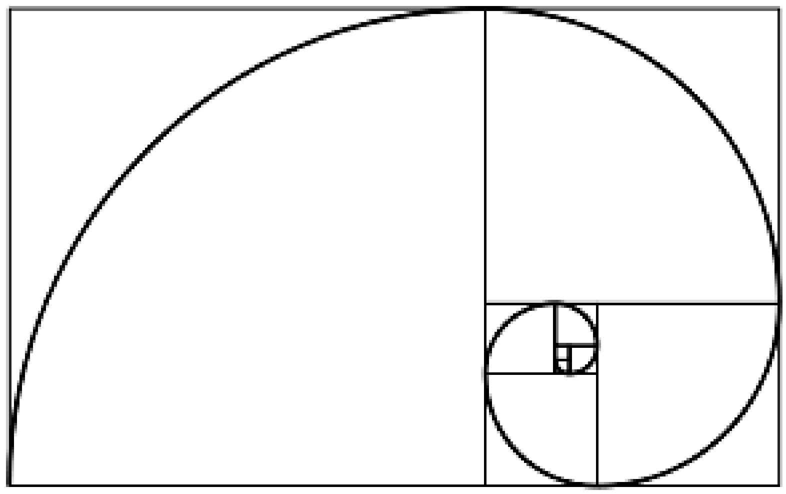
For $F'=(2G-F)=9.158461354\text{x}10^{102}$ space quanta = $R_{F'}=\sqrt[3]{F'})(\lambda_{weyl}/2\pi)=3.32987275\text{x}10^{11}$ m* for a time
$t_{F'}=n_{F'}/H_o=2.0842\text{x}10^{-15}/H_o=1109.96$ s* or 18.50 minutes
and a temperature $T_E=2.1173\text{x}10^{11}$ K* corresponds to $R_{HBlower}=R_e\{R_{F'}/R_E\}=2.6920000\text{x}10^{-18}$ m* in the lower bound for the Higgs Boson
for a Compton mass $m_{HBupper}=h/(2\pi cR_{HBupper})=1.31381\text{x}10^{-25}$ Kg* or 73.605 GeV*
increasing to GeV* for $n_p=1.132711$
increasing to $73.605(Y^{np})=$ 126.950 GeV* for $n_p=1.132711$



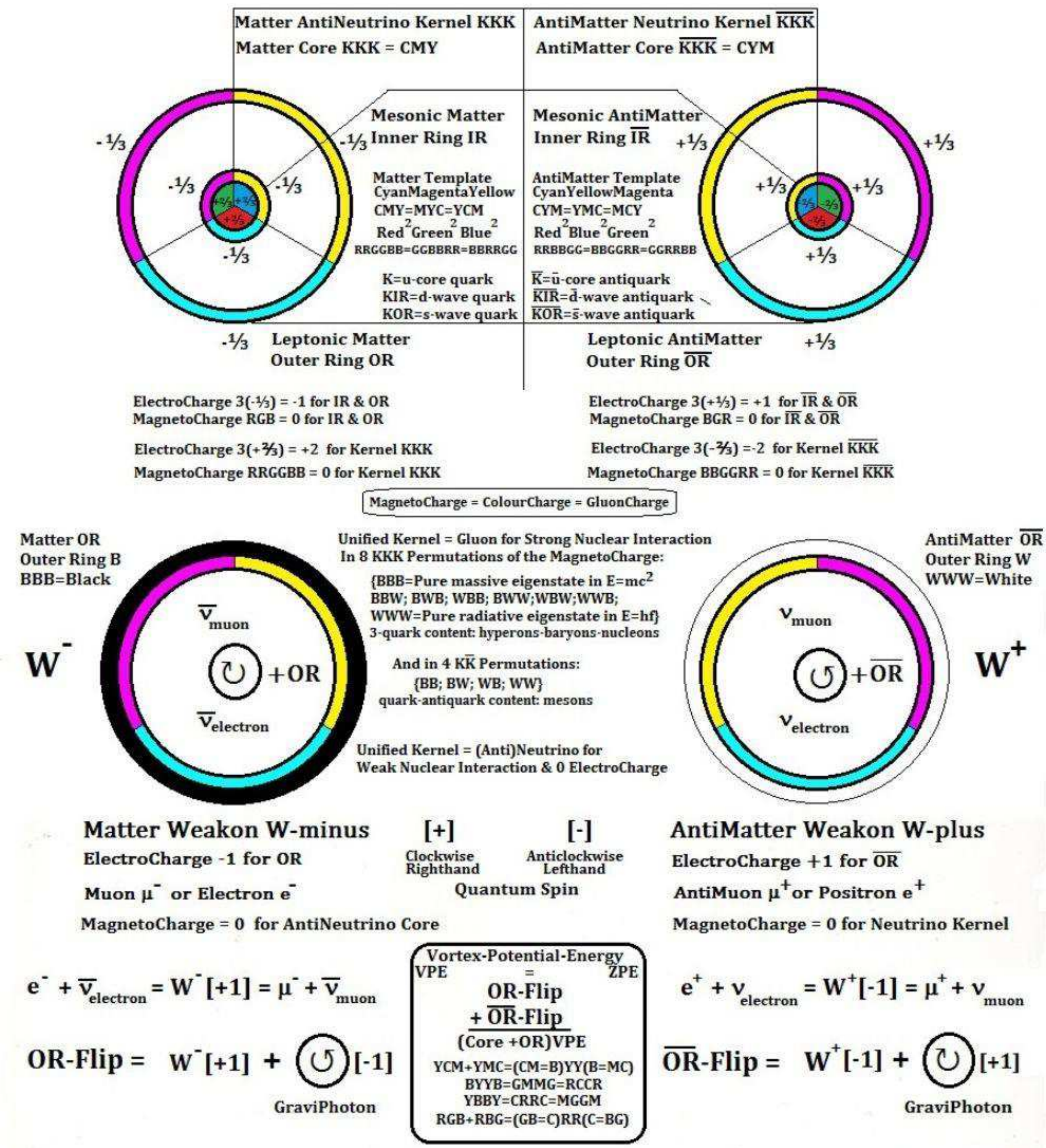
The eight gluonic permutation states are the set: {WWW-WWB-WBW-BWW-BBW-BWB-WBB-BBB} between the radiative Eps-gauge photon self-state and the massive Ess-gauge anti-photon self-state.

The proton is stable as the M_o/m_c restmass seedling coupled to the electronic mass-quantum me via the XL-Boson superstring of unification gauge SEW.G of the HO(32) superstring class, manifesting via the hadron-mesonic X-Boson and the leptonic L-Boson at X-Boson time of t = $2.20\text{x}10^{-39}$ s*, an effective temperature of $2.145\text{x}10^{28}$ K* and an effective post-Planck radius of $1.051\text{x}10^{-31}$m* for a mass of $3.36\text{x}10^{-12}$kg* or $1.88\text{x}10^{15}$GeV*

The Higgs Bosonic radius r_{HB} has a Compton-de Broglie mass at the Neutrino induction marker G for $m_{HB}=h/2\pi cr_{HB} = 1.279\text{x}10^{-25}$ kg* or 71.636 GeV* at time t_G = 1130 s* increasing to $m_{HB}Y^{np} = 2.206\text{x}10^{-25}$ kg* or 123.55 GeV* or 123.09 GeV as a mean value between markers F at 1150 s* and F' at 1110 s* for a Higgs Boson mass interval m_{HB}:{ 1.268-1.290-1.314}x10^{-25} kg* or {71.02 -72.27-73.61} GeV* increasing to {122.49 -124.64 - 126.95}GeV* for a present cycle time coordinate of n_p=1.132711... for an EMMI age of the universe of 19.12 Gy



The Universal Quantum Geometric Matter-AntiMatter Template



Neutron ⇨ Proton + Electron + Electron AntiNeutrino

Basic Neutron Beta-Minus Decay: n^{o}[-½] ⇨ p^{+}[-½] + e^{-}[-½] + $\overline{\nu}_e$ [+½]

d[-½]u[+½]d[-½](stable in nucleus)⇨ u[+½]d[-½]d[-½](free) ⇨u[+½]d[-½]d*[-½] (IR-OR Oscillation)
⇨u[+½]d[-½](u[-½].W^{-}[+1].GP[-1])⇨ u[-½]d[+½]u[-½]+e^{-}[-½]+$\overline{\nu}_e$ [+½]⇨ udu[-½]+electron-OR[-½]+ $\overline{\nu}_e$ [+½]

Muon ⇨ Electron + Electron AntiNeutrino + Muon Neutrino

Basic Muon Weak Decay: μ^{-}[-½] ⇨ e^{-}[-½] + $\overline{\nu}_e$[+½] + ν_μ[-½]

OR^{-} [-½] (free)⇨ OR^{-} [-½] (KKK-OR Oscillation) ⇨ (ν_μ.OR)$^{-}$[-½]).(W^{-}[+1].GP[-1]) ⇨ e^{-} [-½] + ν_e[+½] + ν_μ[-½]

Only lefthanded matter particles and only righthanded antimatter particles participate in the Weak Nuclear Interaction in a fundamental Nonparity between Matter and Antimatter and as a consequence of the magnetocharged gauge interaction particles suppressing any naturally occuring antimatter in a inflationary and 'Big Bang prior' radiation-antiradiation grand symmetry 'Goldstone Boson' superstring unification:
RGB/SourceSink Photon(+1)+{BGR/SinkSource Photon(+1)+RestMass Photon(-1)}+RGB/Gluon(+1) +BGR/Graviton(-2)=0 and in coupling to the templates for Matter YCM and Antimatter MCY.

The suppressed SinkSource Photon (Devil/AntiGod Particle) with the 'Dark Matter/Energy Particle' descriptive in the definition of Consciousness/Space Awareness transforms into a Scalar Higgs Gauge Boson to form a recreated Supersymmetry in the Unified Field of Quantum Relativity or UFoQR.
The Gauge Photon RGB(+1) can also be described in the high energy vibratory part Eps of the supermembrane EpsEss with the Gauge Photon BGR(+1) its low energy winded conjugative part Ess.

The Scalar Higgs AntiNeutrino $(RGB)^{4}$[0] + $(RGB)^{2}$[+½] creates the Tau AntiNeutrino $\overline{\nu}_\tau$ [+½] in Leptonic Energy Resonance.
The Scalar Higgs Neutrino $(BGR)^{4}$[0] + $(BGR)^{2}$[-½] creates the Tau Neutrino ν_τ [-½] in Anti-Leptonic Energy Resonance.

The Gravitational constant as a function of the finestructure constant alpha and the distribution of magnetic monopole masses

G_oX^{np}(1+ec/30ec + 1/e*)=G_oX^{np}{1+1/30+1/e*}=(6.44221014x10^{-11}){31/30+1/500}
=6.66983490x10^{-11} [m^3/kgs^2]* = 6.67445232x10^{-11} [m^3/kgs^2]$_{SI}$ for the unitary calibration [m^3/kgs^2]*=1.000692286 [m^3/kgs^2]$_{SI}$

{s}$_{SI}$	=	1.000978394	{s*}	=	0.999022562	{s}$_{SI}$
{m}$_{SI}$	=	1.001671357	{m*}	=	0.998331431	{m}$_{SI}$
{kg}$_{SI}$	=	1.003753126	{kg*]	=	0.996260907	{kg}$_{SI}$
{C}$_{SI}$	=	1.002711702	{C*}	=	0.997295631	{C}$_{SI}$
{J}$_{SI}$	=	1.005143377	{J*}	=	0.994882942	{J}$_{SI}$
{eV}$_{SI}$	=	1.00246560	{eV*}	=	0.997540464	{eV}$_{SI}$
{K}$_{SI}$		0.98301975	{K*}	=	1.017273559	{K}$_{SI}$

The variation observed in the experiments to measure the gravitational constant G(n) therefore depend not on the time variation decrease for G(n), which is precisely balanced in the time variation increase of the M(n) factor in the gravitational parameter, but is a mirror effect of the universal pole direction variation in the alpha finestructure constant, given as $\Delta\alpha/\alpha=8.08\times10^{-5}$ and as the effect of the Dirac string connecting the three wormholes of the QBBS instanton-inflaton couplings quantum entangling the Riemann-Baab universe with the Abba-Khaibit shadow universe in the definitions of the string-membrane modular T-Mirror dualities.

Alpha remains constant for a cosmology descriptive of a non-accelerating cosmology; but will result in a change in the electric charge quantum in a cosmology, which measures an accelerated spacial expansion, which is however the result of a self-intersection of the light path for particular cosmological redshift intervals in an oscillating cosmology.

Here a particular alpha variation reduces the SI-measurement for the square of the charge quantum e in a factor of $(1.6021119\times10^{-19}/1.60217662\times10^{-19})^2$
= 0.99991921...for a calibrated: alpha variation
$\alpha_{var} = 1 - (1.602111895/1.60217662)^2 = 1 - 0.9999192 = 8.08\times10^{-5}$ with Alpha $\alpha = \mu_o ce^2/2h = e^2/2\varepsilon_o hc = 2\pi.(2.99792458)(1.602111895)^2\times10^{-37}/(6.62607004\times10^{-34}) = 60\pi e^2/h$
$= 7.296762965\times10^{-3} = 1/137.0470721$.
As the electropolar charge quantum appears squared in the Alpha-Constant, the Alpha-variation so becomes (1.0000807), with the old value of (e') exceeding the new value of (e) in so 4 parts in 100,000 and [Alpha]' greater in magnitude than Alpha by 81 parts in a million and in agreement with the Churchill-Webb measurements of 1998 and the more recent measurements from by the Wilczynska-Webb-Bainbridge-Barrow-Bosman collaboration (Published 2020), observing very distant quasars with redshifts from quasar J1120+0641 with z=7.085 for an alpha variation

$\Delta\alpha/\alpha = (\alpha_z - \alpha_0)/\alpha_0 = (-2:18 \pm 7:27)\times10^{-5}$.

https://advances.sciencemag.org/content/6/17/eaay9672

The variation in the laboratory measurements of Newton's gravitational constant G is the combined effect of the monopole mass, which when added with the inverse of the magnetic charge quantum defining the Dirac monopole, but as the proportionality connecting the electropolar charge to the magnetopolar charge from $e^*E_{ps}=1=\{e^*/2e\surd\alpha\}\{m_{electron}/m_{planck}\}$, increases the decreasing $G(n)=G_oX^n$ (with the compensating nucleon mass m_cY^n compensating for the constancy of $G_om_o=G(n)m(n)$) by one magnetic monopole mass m_m=[ec] with the source energy perturbation.

Inverting the proportionality $\{2e\surd\alpha\}=e^*\{m_{electron}/m_{planck}\}$ for the proportionality constant as a function of alpha gives $2\surd\alpha=\{e^*/e\}\{m_{electron}/m_{planck}\}$ with $\{2\surd\alpha\}/\{2e^*\surd\alpha\} = E_{ps}$

Using this proportionality constant $(2\surd\alpha/300)$ to account for the proportionality 1+1/30=31/30=310/300 instead of E_{ps} as the perturbation
$E_{ps}-2\surd\alpha/300=1.43052605\times10^{-3}$ in $G(n_{present})$

$=G_oX^{np}\{31/30+1.43052605\times10^{-3}\}=(6.44221014\times10^{-11})\{1.03476386\}=6.666123\times10^{-11}$ [m^3/kgs^2]*

$=6.67073786\times10^{-11}$ [m^3/kgs^2]$_{SI}$ differing from the full perturbation by

$(6.67445232\times10^{-11} - 6.67073786\times10^{-11})$ [m^3/kgs^2]$_{SI}$ = 3.7144565×10^{-3} [m^3/kgs^2]SI or so 4 parts per 1000

Using Dirac's quantization condition as proportionality
$E_{ps}-(2\alpha/300)=1.95135491\times10^{-3}$ gives $G(n_{present})$
$=(6.44221014\times10^{-11})\{1.03528469\}=6.66952152\times10^{-11}[m^3/kgs^2]^*$
$=6.67413873\times10^{-11}[m^3/kgs^2]_{SI}$ differing from the full perturbation by

$(6.67445232\times10^{-11} - 6.67413873\times10^{-11})[m^3/kgs^2]_{SI} = 3.135873\times10^{-4}[m^3/kgs^2]_{SI}$ or so 3 parts per 10,000

And using the nature of the Action Law as the square of charge for a proportionality constant $E_{ps}-(2\sqrt{\alpha}/300)^2=E_{ps}-(4\alpha/90{,}000)=1.99967570\times10^{-3}$ results in $G(n_{present})$

$=(6.44221014\times10^{-11})\{1.03533301\}=6.66983281\times10^{-11}[m^3/kgs^2]^* = 6.67445024\times10^{-11}[m^3/kgs^2]_{SI}$ differing from the full perturbation by $(6.67445232\times10^{-11} - 6.67445024\times10^{-11})[m^3/kgs^2]_{SI} = 2.07907\times10^{-6}[m^3/kgs^2]_{SI}$ or so 2 parts per Million

Because the source energy quantum $E_{weyl}=E_{ps}=m_{ps}c^2=1/e^*=(1/2e\sqrt{\alpha})\{m_{electron}/m_{planck}\}$, the direct proportionality between electro charge quantum e and magneto charge quantum e* for the magnetic flux $\phi_m=(m_{ps}/[ec]_{mod})ec^3=E_{ps}=1/e^*$ modifies the gravitational parameter in the basic Schwarzschild metric $r_{curv}=2G_oM.c^2$

The distribution of the 30 GUT monopoles maximizes the minimum condition for a single monopole in the distribution of 30 monopoles in the doubling of the gravitational parameter from the gravitational potential energy $GM\mathbf{R}/R^2= -\nabla\Phi$ in 4-dimensional spacetime to the gravitational parameter for of a Schwarzschild Black Hole in 5-dimensional spacetime $2G_oM=G_o\{\Sigma M\}=\{G_o/[ec]\}\{1+1/30+\ldots+1/30\}$ for the GUT unification in the timespace preceding the QBBS.

This occurs at the unification mass scale for the fine structures $alpha_{EMR}=2\pi k_e e^2/hc=2\pi G_o m_m^2/hc=alpha_{GR}$ and requiring 30 't Hooft-Polyakov magnetic monopoles in the definition of the Maxwell constant $\mu_o\varepsilon_o=1/c^2$ in units $[Js^2/C^2m][C^2/Jm]$ with the condition $k_e e^2=G_o m_m^2=G_o[ec]^2$ for unitary consistency $[k_e]=[Jm/C^2]=[Js/C^2][m/s]=[\text{Action } h/\text{Charge } C^2][m/s]$ with $G_o=[e^*/kg]= [m^3/kgs^2]=[Js/kg^2][m/s]$ $=[h/(ec)^2][m/s]=[h/C^2][s/m]=[C^2/h][s/m]$ for the inverse of the Action Law as $[\text{Charge } C^2=\text{Action } h]$.

This so defines $k_e[e^2]=m_m^2/k_e$ for $m_m^2=k_e^2[e^2]=[e/4\pi\varepsilon_o]^2=[120\pi ec/4\pi]^2=[30ec]^2=m_m^2$ from the Maxwell constant $\varepsilon_o\mu_o=\{1/120\pi c\}\{120\pi/c\}=1/c^2$ for the unification condition for the mass of a boundary 't Hooft-Polyakov magnetic monopole to be 30[ec] kg* or $30[ec]c^2$ Joules of monopolar energy.

A single 't Hooft-Polyakov monopole would have a mass of
$m_{monopole}=[ec]_{mod}=4.819369032\times10^{-11}$ kg*for a GUT string unification energy of 1.30122964×10^8 J* or 8.1×10^{17} GeV*.

All 30 't Hooft-Polyakov monopoles would have a mass of for a GUT string unification energy of 1.30122964×10^8 J* or 8.1×10^{17} GeV*.

For a mass less universe with no magnetic monopoles, the Schwarzschild metric would take the form with a gravitational constant G_o defining the curvature as a function of purely electromagnetic mass $r_{curv}c^2=G_o\{1+0\}M=G_oM=M/k_e=4\pi\varepsilon_oM$ and where M would be expressed in terms of a Maxwell's displacement current $[ec]_{mod}$=currentxdisplacement

The evolution of the universe in an oscillating spacetime and the age of the earth

Newton's gravitational constant so is allowed to vary and decrease over time as a function of the change in the universal inertia increasing in direct proportionality and the transformation of source energy into physically expressed units of quantum consciousness in the gravitational parameter $GM=G_oM_o=G(n)M(n)$ and n a dimensionless cycle time. Cycle time parameter n is defined in $n=H_ot=ct/R_H$ defining the invariant light path X=ct as a scale factor for the size of the universe defined at cycle time coordinate n in a nodal minimum Hubble constant f_{weyl}, defined as the instanton of creation and varying between odd and even nodes for a maximized Hubble constant $H_o=dn/dt$ as the inflaton of creation in the first semi-oscillation of protoverse as a first seedling universe.

An electromagnetic return of the source light traversing the light path X=ct in the 11-dimensional and higher-dimensional universe so gives birth to a second, but concurrent universe within the omniverse as a multiverse after the completion of the light path of creation has reached the nodal boundary set at the instanton of the Weyl wormhole frequency in the cosmology of the Quantum Big Bang.

The electromagnetic monopolar source light so both reflects and refracts its path from the maximized Hubble H_o-boundary of the inflaton. The refracted light path then increases the size of the bounding omniverse in the addition of wormhole quanta defined in the quantum of universal consciousness and the light path reflected from the 11-dimensional Witten spacetime mirror retraces the light path travelled from the instanton node to the inflaton node as the initial boundary conditions of the multi-dimensional cosmology. The lower dimensional expansion of the universe so is continually decelerating in a parametrization of the wormhole parameters applied to the multitudinous form of the volumars occupying the 10 dimensional string universe; but the electromagnetic retracing of the original light path will intersect itself and cause the measurements of cosmological expansion as a redshift of the light observed to appear as a cosmological contraction and a contraction which will also be observed as a universe accelerating its own expansion.

At a present cycle time of n=1.1327117… and a nodal n=1 for $t_{present}=1/H_o$, the electromagnetic return of the monopolar light path has retraced 13.271 % of the Hubble event horizon defined in $R_H=ct=c/H_o$ of about 16.9 billion light years for a fraction of 2.24 billion light years indicating that the electromagnetic monopolar age of the universe is 16.876+2.240=19.116 billion light years; but that this will be measured in the gravitationally decelerating cosmology as 19.12-4.48=14.64 billion light years.
As the age of the earth is near the doubled light path of the self-intersection in 4.48 billion years added to a doubled interval of a variation in the alpha finestructure constant in 28.6 million years, the age of the earth is 4.48+0.056=4.536 billion years.

Alpha remains constant for a cosmology descriptive of a non-accelerating cosmology; but will result in a change in the electric charge quantum in a cosmology, which measures an accelerated spacial expansion, which is however the result of a self-intersection of the light path for particular cosmological redshift intervals in an oscillating cosmology.
Here a particular alpha variation reduces the SI-measurement for the square of the charge quantum e in a factor of $(1.6021119\text{x}10^{-19}/1.60217662\text{x}10^{-19})^2 = 0.99991921$...for a calibrated:
alpha variation $\alpha_{var} = 1 - (1.602111895/1.60217662)^2 = 1 - 0.9999192 = 8.08\text{x}10^{-5}$ with
Alpha $\alpha = \mu_o ce^2/2h = e^2/2\varepsilon_o hc$

$= 2\pi(2.99792458)(1.602111895)^2 x10^{-37}/(6.62607004x10^{-34}) = 60\pi e^2/h$
$= 7.296762965x10^{-3} = 1/137.0470721$.

As the electropolar charge quantum appears squared in the Alpha-Constant, the Alpha-variation so becomes (1.0000807), with the old value of (e') exceeding the new value of (e) in so 4 parts in 100,000 and [Alpha]' greater in magnitude than Alpha by 81 parts in a million and in agreement with the Churchill-Webb measurements of 1998, increasing from Alpha = $\mu_o c.e^2/2h$ = 1/137.047072 to Alpha = 1/137.036003.

The age of the Milky Way galaxy can be determined by using the process of nucleosynthesis in the early universe in the physics of nucleochronology, that is in measuring the abundance of radioactive elements, such as Thorium-232 (98.98%) compared to the abundance of a known abundance of another stable chemical element found in the periodic table of the atomic elements, such as Europium-153(52.2%); Europium-151(47.8%) is unstable with a half-life of $5.10x10^9$Gy.

In the early universe only rapid neutron capture occurred to synthesize the heavier elements. Spectroscopic evidence of absorption spectra for the ultra-metal-poor and massive Galactic Halo Star CS 22892-052 has discovered an abundance of the radioactive element Thorium with half-life 14.05 Gy in $N(t_{mean})=N_o.exp[-14.05/t_{mean}\}$ for a mean lifetime of $t_{mean}= t_{½}/ln2=14.05/ln2 = 20.27$ Gy.

This larger age is comparable to the Electromagnetic Monopolar EMMI age of the QBBS; but ignores the chemical evolution of the universe adding the reactive elements Europium and Thorium in varying proportions by the rapid neutron capture process to their universal abundance in the subsequent thermodynamic evolution of the universe. The chronometric age determination for CS 22892-052 then provides an estimate of the age for the Milky Way Galaxy and its globular cluster stars.

At the time of the creation of the solar system 4.6 Gy ago, the Thorium/Europium ratio is measured today as 0.369 but as 0.219 in globular cluster star CS 22892-052 in $N(t)=N_o(t_o)\{2^{[-t/t½]}$.
The {Th/Eu} is $(0.369)=N_o.2^{[-4.6/14.05]}$ for N_o=0.463, substantially higher than that for globular cluster star CS 22892-052 measured as 0.219, indicating a far greater age for the star, then calculated for the abundance ratio in the much younger universe for a $N_o=(0.219).\ 2^{[4.6/14.05]}=0.275$.
And for the mean lifetime $t_{mean}=t_{½}/ln2=20.27$ GY,

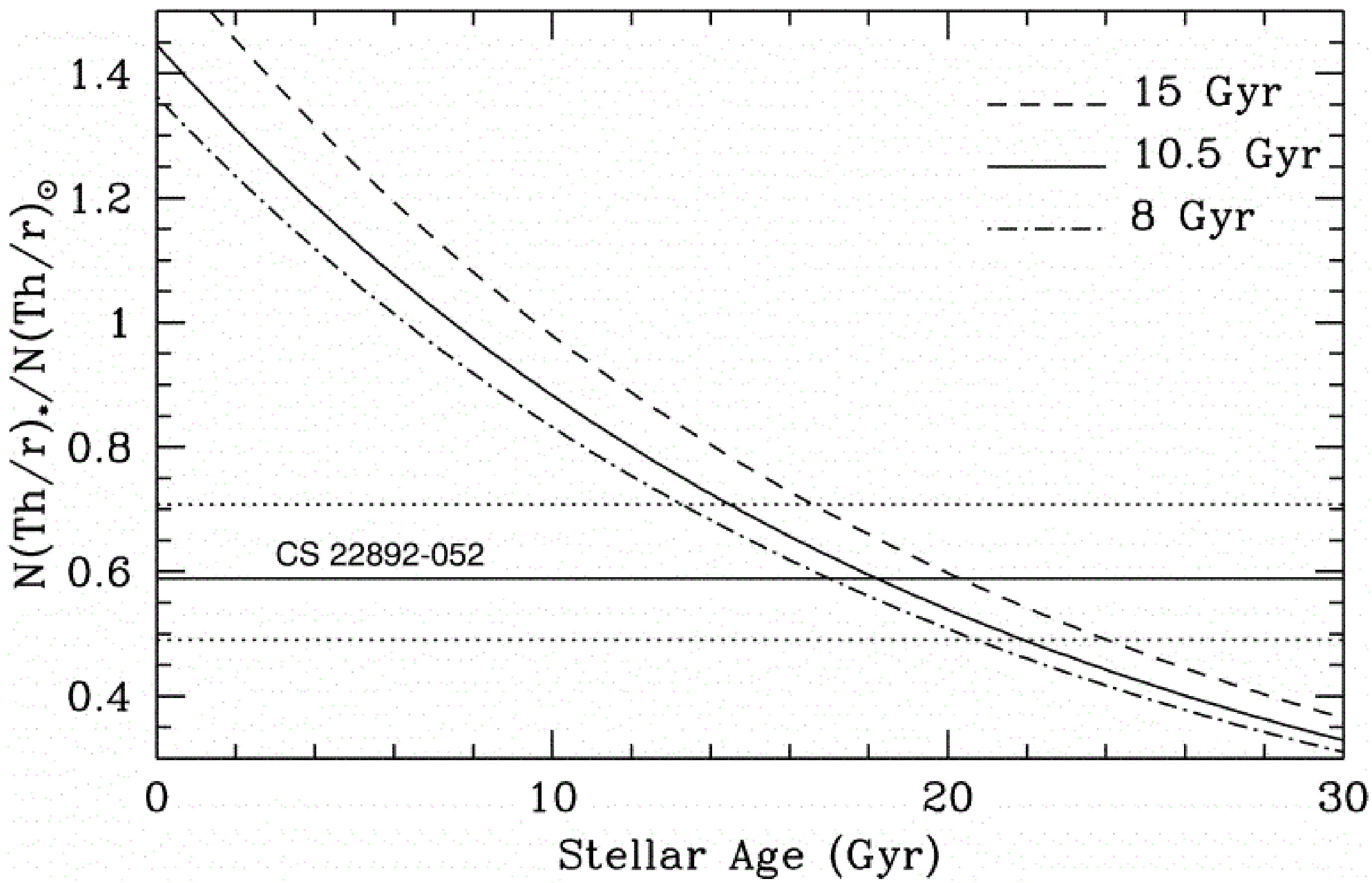


FIG. 8.—Age dependence of the observed Th/r ratio (in units of the observed solar system value), based on a simple model of chemical evolution and three different assumed ages for the Galactic disk. Galactic disk ages of 8, 10.5, and 15 Gyr are indicated. The horizontal lines represent the observed Th/r ratio in CS 22892-052 with 1 σ uncertainty; the best-fit age is 18 Gyr, with an acceptable range from 14 to 22 Gyr.

https://iopscience.iop.org/article/10.1086/303968/fulltext/ **John J Cowan et all;** The Thorium Chronometer in CS 22892-052: Estimates of the Age of the Galaxy; Astrophysical Journal; THE ASTROPHYSICAL JOURNAL, 480:246–254, 1997 May 1

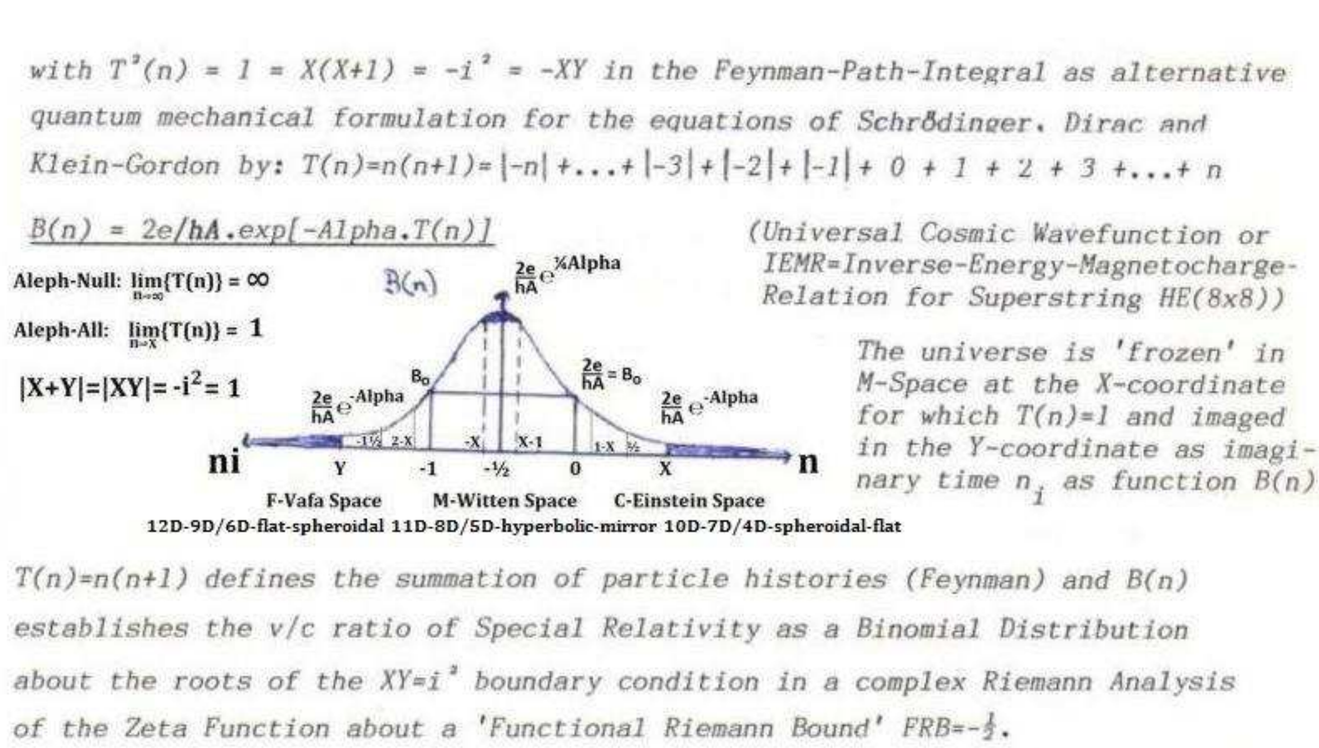
An earlier paper, addressing the actinide chronometer production ratios for the rapid-neutron capture process derive an age for the Milky Way galaxy of 20.8 [+2/-4] Gy and an age for the universe of 19.5 [+3/-3] Gy for a (Sandage) Hubble constant of 60 km/Mpc.s . Those calculations concur with the EMMI age of the universe as 19.12 Gy for a nodal Hubble constant of 58.04 km/Mpc.s for a not accelerating universe with zero cosmological constant in the Friedmann-Walker cosmology.

http://articles.adsabs.harvard.edu/full/1983A%26A...123..162T
Title: New actinide chronometer production ratios and the age of the Galaxy
Authors: Thielemann, F.-K., Metzinger, J., & Klapdor, H. V.
Journal: Astronomy and Astrophysics (ISSN 0004-6361), vol. 123, no. 1, June 1983, p. 162-169.

Measuring Alpha even further back towards the Quantum Big Bang with increasing redshift, would better approximate the 80 parts per million increase in Alpha from say lower deviations at the say 8 parts per million at lower redshifts. So the Alpha-Dip indicates that the textbook SI-value for the electropole is fractionally too high; but that the Alpha Finestructure Constant remains indeed constant once the variation in the electronic charge quantum is considered.

Because the magnetic permeability constants are numerically the same in both the (SI) and the (*) unitary measurement systems; but $\varepsilon_o=1/120\pi c=8.841941283\text{x}10^{-12}$ (F/m)* and is $\varepsilon_o=8.8541878176\text{x}10^{-12}$ F/m (SI), the (SI) measurement is too large by a factor of 1.00138505 to correlate correctly with the magnetic permeability constant μ_o to give the Maxwell constant $\mu_o\text{x}\varepsilon_o=(120\pi/c).(1/120\pi c)=1/c^2$.

In the attempt to explain the Alpha-Dip, some theorists have proposed a 'slowing down' of (c). Recent formulations by populist physicist Paul Davies and in co-authorship with Tamara Davis and Charles Lineweaver from the Department of Astrophysics at the University of New South Wales, Sydney, Australia have followed the wrong avenues for the interpretation of the data, however. In a paper published in ('Nature': 'Black Holes constrain varying constants'; August 8th, 2002), the authors propose a varying light speed to be responsible for the Alpha-Dip and discount any possible variation in the electrocharge quantum. Davies' argument that an increase in (e) would alter the evolution of Black Holes in their entropy definitions does not consider that a product of the Boltzmann Constant (defining entropy), with (e) forms a fundamental fine-structured constant in its own right.


with $T^2(n) = 1 = X(X+1) = -i^2 = -XY$ in the Feynman-Path-Integral as alternative quantum mechanical formulation for the equations of Schrödinger, Dirac and Klein-Gordon by: $T(n)=n(n+1)=|-n|+...+|-3|+|-2|+|-1|+0+1+2+3+...+n$

$\underline{B(n) = 2e/hA.exp[-Alpha.T(n)]}$

(Universal Cosmic Wavefunction or IEMR=Inverse-Energy-Magnetocharge-Relation for Superstring HE(8x8))

The universe is 'frozen' in M-Space at the X-coordinate for which T(n)=1 and imaged in the Y-coordinate as imaginary time n_i as function B(n)

T(n)=n(n+1) defines the summation of particle histories (Feynman) and B(n) establishes the v/c ratio of Special Relativity as a Binomial Distribution about the roots of the $XY=i^2$ boundary condition in a complex Riemann Analysis of the Zeta Function about a 'Functional Riemann Bound' FRB=-½.

In particular, the universe's wavefunction B(n) is localized in any arbitrary spacetime in 'unfreezing' the M-space 'stuck' in between the (X,Y) coordinates and subsequently in between real and imaginary linearized time parameters. This demands the establishment of a Mean-Alignment-Time or MAT,

relative to a 'unfreezing definition' in a specification of the 'naked singularity', oscillating as zero-point about the FRB.
As E*.e*= Epsx1/Eps = 1 as fundamental unity in the 11D Membrane-Mirror-Space of modular duality with e* the magneto charge; one can heuristically state that (Energy E x charge quantum e) in the lower dimensional C-Line-Space C can be expressed as the inversed identity in the form of 1/T.

This then sets E.e=kTe=1 for [ek]=1/T and using an inverse proportion for mass in the lower dimensionality: [e*k*]=1/T* sets a function f(n)=[ek]/[e*k*]=[T*/T].
This is the case for the Mass-Temperature inverse proportionality for the evolution of Black Holes from microstates to macro states and as in the Hawking Mass-Temperature relation for Black Holes and relabeling the Weyl string as the primary sourcesink 'ps' high frequency with small wavelength part of the modular dual supermembrane $E_{ps}E_{ss}$ and with the secondary sinksource 'ss' being the low frequency with large wavelength part of the Witten supermembrane.

Then the Minimum Planck Oscillator $E_{planck}{}^{o}$= ½hf_{planck}=½$m_{planck}.c^2$ for $T_{max}=T_{ps}$ and $T_{min}=T_{ss}$ in string modular T-duality for ½$m_{planck}.T_{planck}$=(1/8π)(4π).$m_{planck}.T_{planck}$=Hawking Modulus HM=$hc^3/4\pi G_o k_B=M_{BHmin}.T_{BHmax}=\{c^2/4\pi^2\}. M_{BHmax}.T_{BHmin}\}$. B(n) is assigned $B(n_{present})=\{[ek_B](SI)/[ek_B](*)\}$, with $\{[ek_B](SI)$=constant=(1.60217662x10^{-19} C)(1.380649x10^{-23} J/K)=2.21204355x10^{-42} CJ/K} and using the old (SI) value with the Alpha-Variation for (e').

Using ($e^{\pm}$=1.6021119x10^{-19} C) without the Alpha-Variation gives $\{[ek_B](SI)\}$=2.21195419x10^{-42} CJ/K}.
The (*)-constant is a relatively fixed constant as: ($e^{\pm}*k_B*$=2.267869086x10^{-42} (CJ/K)*) and subsequently $B(n_{present})$ calculates a particular value for n at the asymptote B(n⇒±∞)=0 for e=1.606456344x10^{-19} C*.

$\{[e^{\pm}k_B](SI)/[e^{\pm}k_B]*\}$=(2.21204355/2.267869086)=0.975384145=[2e/hA].exp(-[Alpha]x$[n_{present}{}^2+n_{present}]$), which yields an unique ($n_{present}$) as a complex solution to the quadratic equation by ln(0.975384145/0.992729803)
={ln(0.982527312}={-Alpha}$\{n_{present}{}^2+n_{present}\}$ for 2.415747501=$n_{present}{}^2+n_{present}$ for: $n_{present}{}^2+n_{present}$-2.415747501=0 and solving as:
($n_{present}$=FRB(-½)±1.6327117).

$\{[e^{\pm}k_B](SI)/[e^{\pm}k_B]*\}$=(2.21195419/2.267869086)=0.975344742=[2e/hA].exp(-[Alpha]x$[n_{present}{}^2+n_{present}]$), which yields an unique ($n_{present}$) as a complex solution to the quadratic equation by ln(0.975344742/0.992729803)
={ln(0.98248762}={-Alpha}$\{n_{present}{}^2+n_{present}\}$ for 2.421284031=$n_{present}{}^2+n_{present}$ for: $n_{present}{}^2+n_{present}$-2.421284031=0 and solving as:
($n_{present}$=FRB(-½)±1.634406324).

For the unfrozen M-space with Alpha-Variation:
{10D-root: $n_{present}$=1.1327117 (real) & 12D-root: $n_{present}$=-2.1327117 (imaginary)}.
For the unfrozen M-space without Alpha-Variation: {10D-root: $n_{present}$=1.1344063 (real) & 12D-root: $n_{present}$=-2.1344063 (imaginary)}.

The difference in the present n_p cycle-time coordinate so becomes
1.634406324-1.6327117 = 0.001694624 as 0.001694624/H_o = 9.02486387x10^{14} s* or 28.59865512 Million civil years.
This 'unfreezing' of M-space then allows the singularity algorithm of the cosmogenesis to manifest

in what might be called the sex chromosomes of the universal DNA-encoding in terms of frequency or a number count. A new physical quantity in 'awareness' is defined as the time differential of frequency and allows the concept of 'consciousness' to be born from the defining qualities of magneto charges.

The Gravitational constant in the evolvement of the primordial nucleon mass $m_c=m_{planck}.\{\alpha\}^9$

The Standard Gravitational Parameter μ= GM = constant = $G_oM(X^nY^n)= G_oX^n.MY^n$ and for $(XY)^n=1$ can be finestructured in a decreasing gravitational constant $G(n)=G_oX^n$ with a corresponding increase in the mass parameter M as $M(n)=M_oY^n$ as say for the proto-nucleonic mass of the Instanton $m_c(n_{ps})$ as
$m_c(n_{present}) = m_c.Y^n_{present} = m_{neutron} < m_cY^n_{present}$
$= 1.711752..x10^{-27}$ kg* and 958.99 MeV* upper limited

For a changing Gravitational constant $G(n_{present}) .m_{neutron}(n_{present})^2 = G_om_c^2.Y^n_{present}$ and is modulated say in A micro-macro Black Hole perturbation
$M_o^2/2M_\infty.M_{MaxHawking} = 1.000543 \sim 1$

The Black Holed mass equivalence for astrophysical bodies is well formulated in the application of the basic Schwarzschild metric derived from General Relativity.
Stephen Hawking developed the inverse proportionality between the mass of a Black Hole M and its Temperature T in the form of the Hawking Modulus:

$HM = m_{Planck}.E^o_{Planck}/k = \sqrt{}\{hc/2\pi G_o\}\{½m_{Planck}.c^2/k\} = hc^3/4\pi G_ok = \{M_{Smin}.T_{Smax}\}$
$= [c^2/4\pi^2]_{mod}.\{M_{MaxHawking} .T_{Smin} \} = 9.131793821x10^{23}$ kg*K*

The Hawking Modulus so has mensuration units [Mass][Temperature] in [kg][K(elvin)] or [kgK]* for the Stefan-Boltzmann entropy constant k_B.

And so $M_{min}.T_{max} = hc^3/4\pi G_ok = [c^2/4\pi^2]_{mod}.M_{max}.T_{min} = ½m_{Planck}.T_{Planck}$
$= M_{MaxHawking}. [c^2/4\pi^2]_{mod}.T_{ss}$ and the Hawking Mass is determined as
$M_{MaxHawking} = \lambda_{max}\pi c^2/G_o = 2.54469..x10^{49}$ kg*.

HyperMass $M_{Hyper} (n_{ps}) = hc^3.e^*/4\pi G_o = 6445.775$ kg at the Instanton boundary $n=n_{ps}$ so increases to $M_{Hyper}(n_{present})Y^n_{present} =hc^3.e^*/4\pi G_oX^n_{present} \sim 11,117.26$ kg as the projected Instanton boundary mass for the wormhole radius $r_{wormhole} = r_{ps}$ modulating the Inflaton curvature with the Instanton curvature and utilizing $n_{present}$=1.132711... for a decreased perturbed $G(n_{present}) = 6.442x10^{-11}$ G-string units for the Standard Gravitational Parameter $G(n)m_iY^k(n).m_jY^{n-k} = G_om_c^2$ = constant for $G(n)=G_oX^n$.
Using the $\lambda_{min}\lambda_{max}$=1 wavelength modulation in the T-duality of
$\lambda_{min}=2\pi R_{min}=1/\lambda_{max}=2\pi/R_{max}$, this modulation closely approximates the geometric mean of the seedling mass in $\{1/4\pi\}M_o^2/2M_\infty.M_{Max}=M_o^2/8\pi.M_\infty.M_{Hawking} =3.2895..x10^{102}/3.2931..x10^{102} \sim 0.998910744...$

This also circumscribes the actual to critical density ratio in the omega of the general relativistic

treatment of the cosmologies.
The applied G value in $G_m(n)=G_o.X^n$ as now coupled to the derived Black Hole Mass modulation coupled to the quantum micro masses.

$G_o m_c^2=\{G_o X^{n+k}\}.\{m_c Y^n\}.\{m_c Y^k\}=G_m(n).m_{nmax}.m_{nmin}$ and where G_m is the actual G value as measured and which has proved difficult to do so in the laboratories.
$G_m(n)=G_o.X^{n+k}=G_o m_c^2/m_{nmax}.m_{nmin}=G_o m_c^2/(\{m_c Y^n\}\{m_{nmin}\})$ and where we have $m_{nmin}=m_c Y^k\}$ for the unknown value of k with $m_{nmax}=m_c Y^n$.

So $G_m(n)=G_o.X^{n+k}=G_o X^n[m_c/m_{nmin}]=G_o\{m_c^2/m_c Y^n\}.\{M_o^2/8\pi.M_\infty.M_{Hawking}.m_{av}\}$ for $X^k=\{m_c/m_{av}\}.\{M_o^2/8\pi.M_\infty.M_{Hawking}\}=1.00109044..\{m_c/m_{av}\}$
and where now $\{m_{nmin}\}=\{8\pi.M_\infty.M_{Hawking}.m_{av}/M_o^2\}=1.00109044..m_{av}$.
$m_{av}=\{M_o^2/8\pi.M_\infty.M_{Hawking}\}\{m_{nmin}\}=\{M_o^2/8\pi.M_\infty.M_{Hawking}\}\{m_c Y^k\}=0.9989107..\{m_c Y^k\}$ and represents a reduced minimum mass $m_{nmin}=m_c Y^k$.

But the product of maximum and 'new' minimum now allows an actual finetuning to a measured nucleon mass m_N by:
$m_N^2 = m_{av}Y^n.m_c Y^n=m_{av}.m_{nmax}.Y^n$.

So substituting for m_{av} in our G_m expression, will now give the formulation:
$G_m(n)=G_o.X^{n+k}=G_o X^n[m_c/m_{nmin}]=G_o\{m_c^2/m_c Y^n\}.\{M_o^2/8\pi.M_\infty.M_{Hawking}.m_{av}\}$
$G_m(n)=G_o.X^{n+k}=G_o X^n[m_c/m_{nmin}]=G_o\{m_c^2/m_c Y^n\}.\{M_o^2/8\pi.M_\infty.M_{Hawking}\}\{m_c Y^{2n}/m_N^2\}$
$G_m(n)=G_o.\{m_c^2/m_N^2\}\{M_o^2/8\pi.M_\infty.M_{Hawking}\}Y^n$

The average nucleon mass m_N is upper bounded in the neutron mass and lower bounded in the proton mass, their difference being an effect of their nucleonic quark content, differing in the up-down transition and energy level and because of electro charges increasing the intra-quarkian Magneto charge coupling between the two mesonic rings of the neutron and a single mesonic ring in the proton's down- or KIR-quark.

For a Neutron Restmass of: $m_{neutron}=1.6812656\text{x}10^{-27}$ kg* (941.9111 MeV*)
or ($1.6749792\text{x}10^{-27}$ kg and 939.594 MeV)
the substitution (and using calibrations m=1.001671358 m*; s=1.000978395 s*; kg=1.003753127 kg* and C=1.002711702 C* gives:
$G(n_p)= G_o\{m_c/m_{neutron}\}^2.(0.9989107..)Y^n{}_p = 6.670693\text{x}10^{-11}$ (m^3/kgs^2)*
or $6.675312\text{x}10^{-11}$ (m^3/kgs^2).

For a Proton Restmass of: $m_{proton}=1.6788956\text{x}10^{-27}$ kg* (940.5833 MeV*)
or ($1.672618\text{x}10^{-27}$ kg and 938.270 MeV).
$G(n_p) = G_o\{m_c/m_N\}^2.(0.9989107..)Y^n{}_p = 6.6895399\text{x}10^{-11}$ (m^3/kgs^2)*
or $6.694171\text{x}10^{-11}$ (m^3/kgs^2).

$G_m(n)=G_o.X^{n+k} = 6.670693\text{x}10^{-11}$ (m^3/kgs^2)* then gives $k_p =\ln\{G_m(n_p)/G_o\}/\ln\{X\} - n_p$
= 1.0602852 - 1.132711 = -0.0724258

The upper value of the neutron bound so represents an upper limit for the Gravitational Constant as the original quark-lepton bifurcation of the X-Boson precursor given in the KKK kernel. Only the KKK kernel is subject to the mass evolution of the cosmos; the leptonic masses being intrinsically incorporated in the Kernel means.
The $m_c.Y^n$ so serves as an appropriate upper bounded approximation for G(n), subject to leptonic ring IR-OR perturbations.

The best approximation for 'Big G' hence depends on an accurate determination for the neutron's inertial mass, only fixed as the base nucleon minimum mass at the birth of the universe. A fluctuating Neutron mass would also result in deviations in 'G' independent upon the sensitivity of the measuring equipment. The inducted mass difference in the protonic-and neutronic rest masses, derives from the Higgs-Restmass-Scale and can be stated in a first approximation as the ground state.
Basic nucleon rest mass is m_c=√Omega.m_P=9.9247245x10^{-28} kg* or 958.99 MeV*.

(Here Omega is a gauge string factor coupling in the fundamental force interactions as:
Cube root(Alpha):Alpha:Cuberoot(Omega):Omega and for Omega=G-alpha.)
KKK-Kernel mass=Up/Down-HiggsLevel=3x319.66 MeV*= 958.99 MeV*, using the Kernel-Ring and Family-Coupling Constants.

Subtracting the Ring-VPE (3L) gives the basic nucleonic K-State as 939.776 MeV*. This excludes the electronic perturbation of the IR-OR oscillation.

For the Proton, one adds one (K-IR-Transition energy) and subtracts the electron-mass for the d-quark level and for the Neutron one doubles this to reflect the up-down-quark differential.
An electron perturbation subtracts one 2-2/3=4/3 electron energy as the difference between 2 leptonic rings from the proton's 2 up-quarks and 2-1/3=5/3 electron energy from the neutron' singular up-quark to relate the trisected nucleonic quark geometric template.

Proton m_p=u.d.u=K.KIR.K=(939.776+1.5013-0.5205-0.1735) MeV* = 940.5833 MeV* (938.270 MeV).
Neutron m_n=d.u.d=KIR.K.KIR=(939.776+3.0026-1.0410+0.1735) MeV* = 941.9111 MeV* (939.594 MeV).

This is the ground state from the Higgs-Restmass-Induction-Mechanism and reflects the quarkian geometry as being responsible for the inertial mass differential between the two elementary nucleons. All ground state elementary particle masses are computed from the Higgs-Scale and then become subject to various finestructures. Overall, the MEASURED gravitational constant 'G' can be said to be decreasing over time.

The ratio given as k is G_mY^n/G_o ~ 0.600362... and so the present G-constant is about 60% of the one at the Planck Scale.
G decreases nonlinearly, but at a present rate of 0.600362/19.12x10^9 per year, which calculates as 3.1400..x10^{-11} G-units per year.

Generally using the exponential series expansion, one can indicate the change in G.
For $X^{n+k}=z=\exp[(n+k)\ln X]$ by $(n+k)\ln X=\ln z$ for the value $u=(n+k)\ln X=-0.481212(n+k)$; z transforms in exponential expansion $e^u=1+u+u^2/2!+u^3/3!+u^4/4!+...$

For a function $f(n)=z=G_m(n)/G_o=X^{n+k}$ - f(n)
$=1-(0.481212.)(n+k)+(0.2316.)(n+k)^2/2-(0.1114.)(n+k)^3/6+(0.0536.)(n+k)^4/24-...+...$

At time instantaneity of the Quantum Big Bang, $n=n_{ps}=\lambda_{ps}/R_{max}=6.2591\times10^{-49} \sim 0$
Then $G_{BigBang}=G_oX^{nps}=G_o$ (to 50 decimal places distinguishing the time instanton from the Null time as the Planck-Time transform).
G_o represents the quantum gravitational constant applicable for any Black Hole cosmology and can be used to correlate the MOND gravitation with the Newton-Einstein gravitation in inferring a greater gravitational constant in the cosmic past in conjunction with an inherent Milgröm deceleration as a time derivative of the universal scale factor a={n/[n+1]}.

For our previously calculated $k=\ln(G_mY^n/G_o)/\ln X$ and which calculates as k= -0.0724258..
$f(n)=1-(0.481212.)(n+k)+(0.2316.)(n+k)^2/2-(0.1114.)(n+k)^3/6+(0.0536.)(n+k)^4/24-(0.0258.)(n+k)^5/120+...-...$
for f(1.132711)=1-0.51022+0.13016-0.02214+0.00283-0.000288...+...~ 0.6006340 to fifth order approximation to 0.60036246...

Hence, the gravitational constant assumes a value of about 60.0% of its Big Bang initialization and calculates as 6.675×10^{-11} G-units for a present cycle time
$n_{present}=H_ot_{present}=1.132711...$

The introduction of the mass seed coupling between the macro quantum M_o and the micro quantum $m_c=m_P alpha^9$ (from the gravitational finestructure unification) PERTURBS the 'purely electromagnetic' cosmology in the perturbation factor k and increases the purely electromagnetic G_{memr} in the black hole physics described.

So gravity appears stronger when one 'looks back in time' or analyses cosmological objects at large distances. The expansion parameter (a) in the Friedmann-Einstein standard cosmology can be rewritten as a curvature ratio $R(n)/R_{max}=\{n/(n+1)\}$ and describes the asymptotic universe in say 10 dimensions evolving under the inertial parameters of the c-invariance. This 'lower dimensional universe' is open and expands under hyperbolic curvature under the deceleration parameter $q_o=½\Omega_o=M_o/2M_\infty=2G_oH_oM_o/c^3$ ~0.014015... This open universe is bounded in the 'standing wave' of the Hubble Oscillation of the 11D and 'higher dimensional universe'.

The Inflaton and the Grand Unification Symmetry in a Transformation of Supermembranes

SEWG-------------------------SEWg--------SEW.G--------SeW.G-------S.EW.G-------------S.E.W.G
Planck Unification I-------IIB------------HO32----------IIA-----------HE64--Bosonic Unification

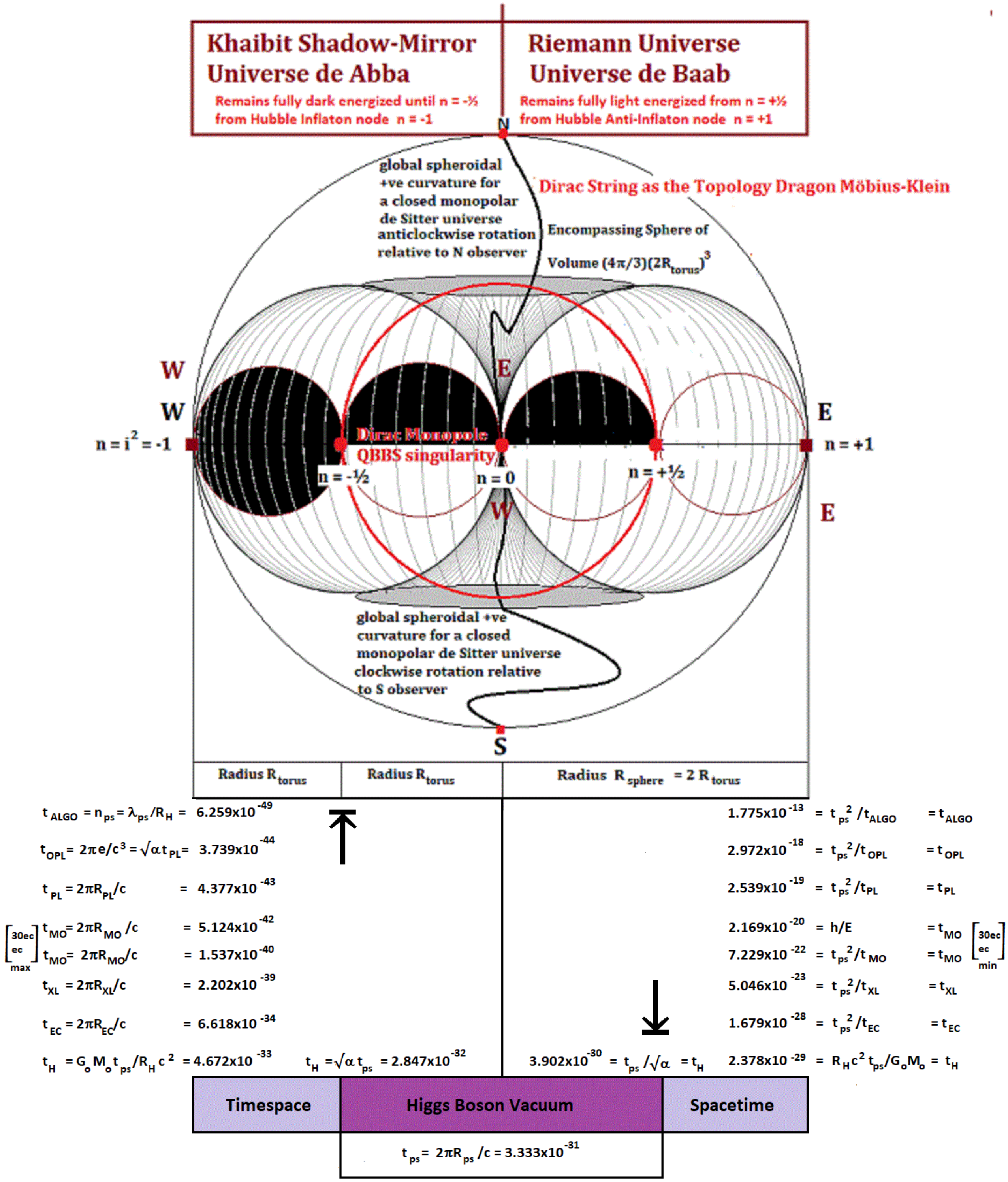
{Capitalization of letters infers emphasis and decapitalization of letters implies suppression of respective fundamental interactions}.

The transformation of the 5 superstring classes proceeds in utilizing the self-duality of superstring IIB as the first energy transformation of the Inflaton in the Planck string class I trans mutating into the monopole string class IIB and residing in the 2-toroidal bulk space of Vafa as a Riemann 3-dimensional surface describing the VPE-ZPE of the micro quantum of the QBBS. The E_{ps}-Weyl wormhole of topological closure so is holographically and conformally mapped onto the bulk space in 12 dimensions as a braned volumar evolving by mirror duality of the 11dimensional closed AdS membrane space of Witten's M-space as Vafa's F-space and mirroring the hyperbolic topology of 10-dimensional C-space as an open dS cosmology in an overall measured and observed Euclidean flatness of zero curvature.

String Boson	**Decoupling Time s***	**Wavelength (λ=2πl) m***	**Energy (hc/λ) J* & eV***	**Modular Wavelength m***	**Temp K***	**Significance**
0. Genesis-Boson Algorithmic	TIME=1/FREQUENCY $= \lambda_{ps}/R_H = \lambda_{ps}H_o/c$ $= n_{ps} = H_o t_{ps}$ 6.2591×10^{-49}	LIGHTPATH c.TIME 1.877×10^{-40}	ENERGY= hR_{max}/λ_{ps} =k.TEMPERATURE =h.FREQUENCY =h/TIME=MASS.c^2 1.065 PJ* or 6.629×10^{33} eV*	5.326×10^{39}	TEMPERATURE $= hR_{max}/k\lambda_{ps}$ 7.54481×10^{37}	Algorithmic Definiton
1. Planck Length Bounce $\sqrt{\alpha}L_{planck}c^2=e\leftrightarrow e^*=2R_ec^2$ $=1/E_{ps}$	$t_{OPL}=2\pi r_{OPL}/c$ 3.739×10^{-44}	1.122×10^{-35}	17.830 GJ* or 1.110×10^{29} eV*	8.913×10^{34}	1.263×10^{33}	Quantum Fluctuation of Creation
2. Planck-Boson I/SEWG⇒sEwG	$t_P=2\pi r_P/c$ 4.377×10^{-43}	$L_P=2\pi r_P$ 1.313×10^{-34}	1.523 GJ* or 9.482×10^{27} eV*	7.617×10^{33}	1.079×10^{32}	Outside Hubble Horizon Limit in Protoverse

3. Monopole-Boson IIB/sEwG⇒SEWg GI-GUT decoupling max = 30 [ec] min = 1 [ec]	$t_M=2\pi r_M/c$ $5.124\text{x}10^{-42}$ [max] to [min] $t_M=2\pi r_M/c$ $1.537\text{x}10^{-40}$	$1.537\text{x}10^{-33}$ [max] to [min] $4.611\text{x}10^{-32}$	13.011 MJ* or $8.100\text{x}10^{26}$ eV* [max] to [min] 4.337 MJ* or $2.700\text{x}10^{25}$ eV*	$6.506\text{x}10^{32}$ [max] to [min] $2.169\text{x}10^{31}$	$9.216\text{x}10^{30}$ [max] to [min] $3.072\text{x}10^{29}$	Outside Hubble Horizon Limit in Protoverse
4. XLBoson HO32/SEW.G	$t_{XL}=2\pi r_{XL}/c$ $2.202\text{x}10^{-39}$	$6.605\text{x}10^{-31}$	302.817 kJ* or $1.885\text{x}10^{24}$ eV*	$1.514\text{x}10^{30}$	$2.145\text{x}10^{28}$	Outside Hubble Horizon Limit in Protoverse
5. Ecosmic-Boson IIA/SeW.G SNI decoupling	$t_{EC}=2\pi r_{EC}/c$ $6.618\text{x}10^{-34}$	$1.986\text{x}10^{-25}$	1.0073 J* or $6.270\text{x}10^{18}$ eV*	$5.035\text{x}10^{24}$	$7.135\text{x}10^{22}$	Galactic Supercluster Sarkar Scale $M_o=R_{Sarkar}c^2/2G_o$
6. False Higgs Vacuum (min to max)	$t_{Hmin}=G_oM_o/c^3n_{ps}$ $4.672\text{x}10^{-33}$ [min] to [max] $t_{Hmax}=\sqrt{\alpha tps}$ $2.847\text{x}10^{-32}$	$1.402\text{x}10^{-24}$ [min] to [max] $8.541\text{x}10^{-24}$	0.143 J* or $8.883\text{x}10^{17}$ eV* [min] to [max] 0.023 J* or $1.458\text{x}10^{17}$ eV*	$1.171\text{x}10^{23}$ [min] to [max] $7.133\text{x}10^{23}$	{$7.206\text{x}10^{37}$ [min] to [max] $1.857\text{x}10^{37}$ Algorithmic from Genesis Boson}	Galactic Supercluster Scale
7. Weyl-Boson HE64/S.EW.G Big Bang Instanton EMI decoupling	$t_{ps}=2\pi r_{ps}/c$ $3.333\text{x}10^{-31}$	$1.000\text{x}10^{-22}$	0.002 J* or $1.245\text{x}10^{16}$ eV*	$1.000\text{x}10^{22}$	{Temperature Gradient $T_{ps}/T(n_{ps})$ Genesis Boson $T(n_{ps})$ = $2.935\text{x}10^{36}$}	Galactic Halo (Group) Scale

8. $T(n)=T_{ps}$ Bosonic Condensate Unification	$t_{BU}=n_{BU}/H_o$ 1.897×10^{-9}	$ct_{BU}/(1+H_o t_{BU})$ 0.5691 Protoverse Inflaton min to Instanton to Inflaton max 10^{-22}	Bosonic Plasma h/t_{BU} 3.514×10^{-25} J* or 2.188×10^{-6} eV* 0.002 J* or 12.45 PeV*	1.757 Protoverse 10^{22}	$T_{BU} = T_{ps}$ $= 1.417 \times 10^{20}$ $18.2[n+1]^2/n^3$ $n=H_o t_{BU}$	Unitary Modular Geometric Mean Scale
9. Electroweak WNI decoupling	$t_{EW}=n_{EW}/H_o$ 0.00714~1/140	8.543×10^{-18}	2.341×10^{-8} J* or 145.70 GeV*	1.171×10^{17}	1.658×10^{15}	Higgs Boson And RMP Dark Matter scale
10. Higgs Chi-Boson/ Super Diquark Sbar=ss Quark-Lepton scale Vacuum Expectation	$t_{QL}=n_{QL}/H_o$ 0.00274~1/365	2.227×10^{-17} Quantum Scale	4.799×10^{-8} J* or 298.785 GeV*	4.490×10^{16}	3.400×10^{15}	Outer Leptonic Inner Mesonic Kernel Quantum scale


Khaibit Shadow-Mirror
Universe de Abba
Remains fully dark energized until n = -½
from Hubble Inflaton node n = -1
Riemann Universe
Universe de Baab
Remains fully light energized from n = +½
from Hubble Anti-Inflaton node n = +1
N
global spheroidal
+ve curvature for
a closed monopolar
de Sitter universe
anticlockwise rotation
relative to N observer
Dirac String as the Topology Dragon Möbius-Klein
Encompassing Sphere of
Volume $(4\pi/3)(2R_{torus})^3$
W
W
E
E
E
W
$n = i^2 = -1$
$n = +1$
Dirac Monopole
QBBS singularity
n = -½
n = 0
n = +½
global spheroidal +ve
curvature for a closed
monopolar de Sitter universe
clockwise rotation relative
to S observer
S
Radius R_{torus}
Radius R_{torus}
Radius $R_{sphere} = 2R_{torus}$
$t_{ALGO} = n_{ps} = \lambda_{ps}/R_H = 6.259\text{x}10^{-49}$ | $1.775\text{x}10^{-13} = t_{ps}^2/t_{ALGO} = t_{ALGO}$
$t_{OPL} = 2\pi e/c^3 = \sqrt{\alpha}\, t_{PL} = 3.739\text{x}10^{-44}$ | $2.972\text{x}10^{-18} = t_{ps}^2/t_{OPL} = t_{OPL}$
$t_{PL} = 2\pi R_{PL}/c = 4.377\text{x}10^{-43}$ | $2.539\text{x}10^{-19} = t_{ps}^2/t_{PL} = t_{PL}$
$\begin{bmatrix}30ec\\ec\end{bmatrix}_{max}$ $t_{MO} = 2\pi R_{MO}/c = 5.124\text{x}10^{-42}$ | $2.169\text{x}10^{-20} = h/E = t_{MO}$ $\begin{bmatrix}30ec\\ec\end{bmatrix}_{min}$
$t_{MO} = 2\pi R_{MO}/c = 1.537\text{x}10^{-40}$ | $7.229\text{x}10^{-22} = t_{ps}^2/t_{MO} = t_{MO}$
$t_{XL} = 2\pi R_{XL}/c = 2.202\text{x}10^{-39}$ | $5.046\text{x}10^{-23} = t_{ps}^2/t_{XL} = t_{XL}$
$t_{EC} = 2\pi R_{EC}/c = 6.618\text{x}10^{-34}$ | $1.679\text{x}10^{-28} = t_{ps}^2/t_{EC} = t_{EC}$
$t_H = G_o M_o t_{ps}/R_H c^2 = 4.672\text{x}10^{-33}$
$t_H = \sqrt{\alpha}\, t_{ps} = 2.847\text{x}10^{-32}$
$3.902\text{x}10^{-30} = t_{ps}/\sqrt{\alpha} = t_H$
$2.378\text{x}10^{-29} = R_H c^2 t_{ps}/G_o M_o = t_H$
Timespace
Higgs Boson Vacuum
Spacetime
$t_{ps} = 2\pi R_{ps}/c = 3.333\text{x}10^{-31}$

Quantum Gravitation Unification in a Coupling of the Supermembranes in Self dual Monopole Class IIB

SEWG ---- SEWg as string transformation from Planck brane to (Grand Unification/GUT) monopole brane.
The X-Boson is modular dual to the L-Boson in the string class transformation from the Planck brane to the monopole brane to the X/L-brane to the Cosmic String brane to the Weyl brane. For the X-Boson, the coupling can be written as: : $\#.(m_{ps}/m_{Planck})f(G)$ and for the L-Boson it is written as: $\#^{54}.(m_{Planck}/m_{ps})f(S)$ to indicate the inherent modular duality.

As alpha=$\#^3$ specifies the emmr-matter-emr interaction probability; EMI/SNI=$\#^3/\#=\#^2$ breaks the unified symmetry via the WNI and defines #f(G) as a unitary mass.

A 'mixing angle' θ_{ps} is defined via constant $X \Rightarrow \{\aleph\}^3 \Rightarrow$ alpha α as $X = \varpi(n)$. sin θ_{ps} for a unitary force action $\varpi(n)$ acting on the inflaton acceleration cf_{ps} modulated from the inflaton source hyper-acceleration of the de Broglie matter wave for phase speed $R_H f_{ps}$ in $R_H f_{ps}^2=1.43790791\text{x}10^{87}$ (m/s^2)* in the displacement light path for the nodal Hubble constant $H_o = dn/dt = c/R_H$ defining the frequency ratio $n_{ps} = \lambda_{ps}/R_H = 2\pi r_{ps}/R_H = f_{ps}/H_o$ as the linearization of the wormhole from its closed Planck brane form as string class I into its transformation as open string class HE(8x8) then manifesting as the Compton-de Broglie wavelengths in the emr-matter-emmr interactions.

The Hubble law so modulates the inflaton as the instanton in a dimensionless cycle time parameter n in a time rate change constant as the nodal Hubble constant $H(n)|_{min}$ =
H_o = 58.04 km/Mpc.s (extrapolated to 66.9 km/Mpc.s for a present $n_{present}$ =1.132711... cycle time coordinate) and in inverse proportion to its maximum as the wormhole frequency f_{ps}, becoming the maximum node for H(n) in the associated multiverse cosmology, which defines this multiverse as parallel in time space, but as holofractally nested in spacetime. It is then a quantum tunneling of the entire universe upon the completion of interwoven cycles defining the nodal oscillations in particular nodal 'walls of time' defined in the light path, which become the medium for this quantum tunneling of lower dimensional spacetime itself.

The inflaton angle θ_{ps} so is maximized at 90° at $X = \varpi(n)$. sin θ_{ps} for θ_{ps} = 38.17270761° for a unitary force $\varpi(n)$=1 and for the X/L bosonic coupling for a GUT scale characterizing SEW.G for the decoupling of the gravitational interaction from the unified energy field described by the Standard Model.

Now the Planck string for a Planck time of $t_P=2\pi r_P/c = 4.377\text{x}10^{-43}$ is connected to the X/L string via the monopole string at the unified SEWG level in the self-duality of the GUT-monopole at $[ec.c^2]_{uimd}$ = $2.7\text{x}10^{16}$ GeV* and at a brane inflaton time of $t_M=2\pi r_M/c=1.537\text{x}10^{-40}$ s* and for which SEWG transformed into sEwG to indicate the unified nature between the long-range EMI and GI in a coupling of the electromagnetic and gravitational fine structures here termed alpha and g-alpha respectively.

The X/L boson time is $t_{XL}=2\pi r_{XL}/c=2.202\text{x}10^{-39}$ s* and string class HO(32) decouples gravity in replacing $f(G)/m_{Planck}$ by the monopole mass $\#^2/[ec]_{uimd}$ modular dual to $f(S)m_{Planck}$ to account for the SNI/EMI breaking of the native supersymmetry SEWG and to transform the Planck brane energy scale into the X/L brane energy scale.

m_{XB} = alpha.m_{ps}/[ec]$_{uimd}$ = #^{3}.m_{ps}/[ec]$_{uimd}$ = 3.364554269x10^{-12} kg* = 1.884955575x10^{15} GeV* unifying SEW in the monopolar electron boson energy $m_{ec}|_{max}$ = αm_{ps} m_{LB} = alpha^{18}.[ec]u$_{imd}$/#^{2}.m_{ps} =#^{52}.[ec]u$_{imd}$/#^{2}.m_{ps} = 1.982105788x10^{-28} kg* = 111.0453587 MeV* unifying EWG at the bosonic muon energy

The X-Boson mass and the L-Boson mass then transform into the string class IIA, as the coupling from the self-dual monopole class, here termed the ECosmic Boson to indicate its native characterization as primordial cosmic string ancestor for a spectrum of cosmic rays, tabulated following this discussion.

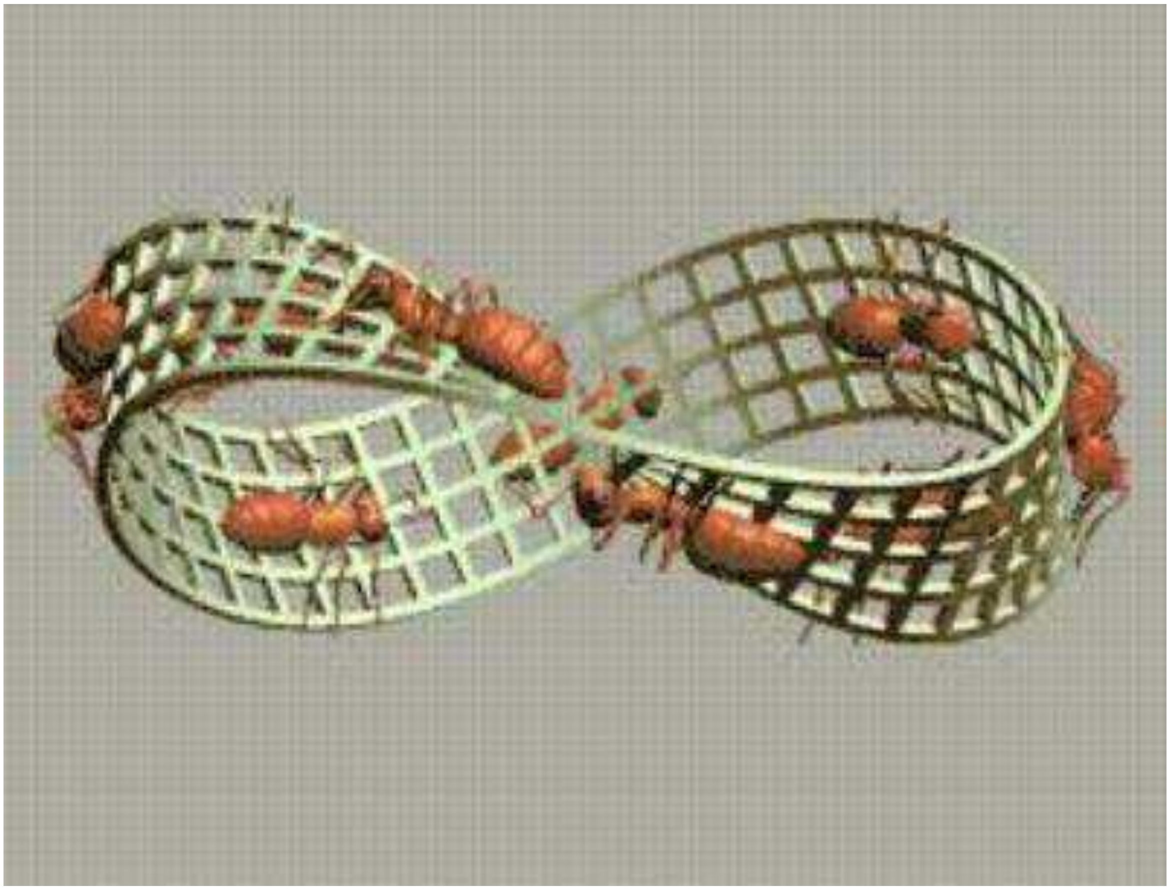
The ECosmic Boson manifests at an inflaton time of $t_{EC}=2\pi r_{EC}/c$ = 6.717x10^{-34} s* at an energy of 0.9927 J* or 6.180x10^9 eV* and as a consequence of the universal wavefunction B(n) = {2e/hA}.exp{-Alpha.T(n)} and where T(n)=n(n+1) defines X and Y in the Euler identity for T(n)=1.

The electromagnetic interaction, which was emphasized in the decoupling of the gravitational interaction in the sEwG to form the X/L-Boson in SEW.G now becomes suppressed in SeW.G in the B(n) for $n=n_{ps}$=6.259093473x10^{-49} ⇒0 and T(0)=0 for $B(n_{ps})$=2e/hA= 0.992729794..in units of inverse energy that is as units of the magneto charge under modular string duality.

The constant A=4.854663436x10^{14} Ampere* can be defined as a cosmic string magneto current and derives from particular algorithmic encodings underpinning the numerical values for the fundamental constants of nature.

The ECosmic boson then triggers a 'false vacuum' in a brane time interval from $t_{dBmin}=G_oM_o/c^3n_{ps}$ = 4.672x10^{-33} [min] to [max] $t_{dBmax}=\sqrt{\alpha}t_{ps}$ = 2.847... x10^{-32} defined in a non-kinematic temperature gradient of the cosmogenesis and related to the hyper acceleration gradient between the de Broglie inflaton wave phase speed $a_{dB} = R_Hf_{ps}^2$ and the boundary cosmological (dark energy) constant $\Lambda_{Einstein}(n_{ps})$ = G_oM_o/λ_{ps}^2 with
$2.\Lambda_{Einstein}(n_{ps})/a_{dB} = M_o/M_H$=0.02803.. descriptive for the baryonic matter content at the instanton as a proportional coupling between the 'mother black hole' defined in the Schwarzschild metric with an event horizon the size of the Hubble radius $R_H = 2G_oM_H/c^2$.

It can be said, that the universal wave function B(n) remains 'frozen' within this encompassing inflaton event horizon about the FRB (Functional Riemann Bound) at the x=-½ coordinate and between a cosmic uncertainty interval {X: -1,0} defining the Witten-M-space in this presentation; until it is observed and/or defined in accordance with the premises of quantum mechanics applied to the universe in total. In particular the 'unfreezing' of B(n) requires the linearization of the quantum geometric circularity of the Compton wavelength into its particularized quantum radius.



https://youtu.be/sRTKSzAOBr4

Quark-Lepton Unification in XL-Boson Class HO(32)

SEWg --- SEW.G

Following the creation of the 'false Higgs vacuum' as a potential spacetime quantum and as a prototypical holofractal of the brane volumar; the Planck string and now as an ECosmic string of increased spacial extent and of lower energy transforms into the Weyl-E_{ps} Boson of the quantum big bang event as the instanton.

This results in an integration or summation of E_{ps}-quanta evolving at the speed of light from the original Weylian wormhole as the 'creation singularity'.

This 'filling' of the inflaton M-space with lower dimensional instanton C-space represents however an attempt by the wormhole summation, which is expanding originally at the speed of light to become retarded by a force opposing the linear expansion and so decurving of the original wormhole definition.

This effect of anti-curvature or the attempt to recircularized the linearization of the lower dimensional expanded membrane space by its higher dimensional contracting (or collapsing) membrane space is known as gravity in the macrocosmic cosmology of General Relativity but represents the integrated effect of quantum gravity as a summation of spacetime quanta as wormhole volumars inhabiting expanding space as boundary and initial condition for contracting spacetime.

The expanding qbb or the integration and multiplication of wormhole quanta now enables the X/L bosons to transform into a quark-lepton hierarchy at instanton time $t_{ps}=f_{ss}=1/f_{ps}=3.333.x10^{-31}$ s*.

The Higgs vacuum is now rendered as physical in spacetime occupancy and the relative sizes of elementary particles is defined in the diameter of the electron and its parameters of energy and momentum. In particular $e^*=2R_ec^2=1/E_{ps}$ restricts the extent of the Compton constant in the mass and size of the electron and quantizing the quantization of monopolar energy in the volumar equivalent of the inversed source energy quantum of the Weyl-E_{ps} Boson conformally transformed from the Planck scale onto the Weyl wormhole scale in the superstring transformations.

Magnetopolar charge e* as inversed energy quantum in its higher dimensional form assumes the characteristic of a region of space acted upon by the time rate change of frequency or df/dt. As said, this allows a definition of physical consciousness as the action of a quasi-angular acceleration as df/dt onto the dynamics of anything occupying any space, if this space represents a summation of E_{ps}- gauge photon quanta. The concept of physical consciousness so finds it resolution in the quantum geometry of super brane volumars.

The Higgs field of physical consciousness so applies action on spatially occupied dynamics, such as elementary particles or collections and conglomerations of particles, irrespective of those particles exhibiting inertial mass or gravitational mass and as a consequence of the photonic energy equivalence to mass in $E=hf=mc^2$.

The X-Boson of energy $1.885x10^{15}$ GeV* so transforms into a K-Boson of energy given by the transformed Planck boson into the K-Boson with $m_c=m_{Planck}.Alpha^9=k_ee\alpha^{8.5}$

$=(e/G_o)\alpha^{8.5}=9.924724514x10^{-28}$ kg or 556.0220853... MeV* under Planck-Stoney unification for electric charge and mass.

The primordial K-Boson so becomes the ancestor for all nucleons and hyperons as a base kernel energy as a function of cycle time n in $m(n)=m_cY^n$.

For a invariance of the Gravitational parameter $GM=G_oX^n.MY^n$= constant , a mass evolution in the constancy of $XY = X+Y = e^{i\pi} = i^2 = -1\ \forall n$ can be applied to 'evolve' the mass of the K-Boson as a function of cycle time n from its initial self-state $n_{ps}=H_o/f_{ps}=\lambda_{ps}/R_H$ and to relate the history in time to a history of space in a timeless cosmogenesis.

This evolution of mass as a fundamental cosmological parameter relates to the 'missing' mass in the M_o/M_H = 0.02803... ratio say as the Omega of the deceleration parameter in the Friedmann cosmology. Considering a time evolution of a rest mass seedling M_o towards a Black Hole closure mass M_H in the form of 'massless eternal Strominger branes' will crystallize the existence of a multiverse as a function of the wormhole radius r_{ps} expanding in higher dimensional brane spacetime until the Hubble radius R_H is reached in a time of about 4 trillion years. A formula to describe this is: $n\ln Y=\ln(R_H/r_{ps})$ or equivalently $n\ln Y=\ln(M_H/M_{curvature})$ for the quantum gravitational transformation of the Planck mass into the curvature mass of 6445.775... kg* as the minimum mass a Black Hole can have in the quantum relativistic cosmology.

When a Strominger eternal (there is no Hawking radiation) black hole has reached its macro state from its micro state, say after 234.47 cycles in a protoverse, then the entire old universe will quantum tunnel into a new universe which was born as a multiverse at the completion of the first cycle for n=1 and when a second inflaton holographically repeated the cosmogenesis parallel in time but not in space to ensure the eternal continuity for the first universe created as a protoverse. The quantum tunneling wall so is an interval of time defined in n_{ps} and not any boundary in space.

https://youtu.be/RF7dDt3tVmI

The upper bound for the kernel mass so becomes $m_cY^{npresent}$ =1.71175285x10^{-27} kg* or 958.9912423... MeV* for $n_{present}$ set at 1.132711...

The K-Boson then assumes the form of a trisected subatomic core in distributing the K-superstring energy in three quantum geometric parts or sectors depictable in three 120-degree regions of a gluon field for the 8 gluon permutations between the SU(3) self-states:

E=mc^2: {BBB; BBW; WBB; BWB; WBW; BWW; WWB; WWW}:E=hf, for the hyperon SU(3) unitary quark or antiquark distribution and E=mc^2:{BB; BW; WB; WW}:E=hf for the mesonic quark-antiquark couplings for SU(2), with the (W)hite state implying complete emr-emmr dematerialization and the (B)lack state inferring complete materialization in the chromodynamics of the colour mixing and gluon charge exchanges.

The L-Boson then induces the outer leptonic OR ring structure as the ancestor of the muon fermion and the inner mesonic ring or IR becomes the oscillatory potential for the OR to reduce in size to approach the kernel K trisected in the gluon distribution.

The precursive X/L-Boson transforming into the quark-lepton hierarchy of fermions, so manifests a native supersymmetry or supergravity without any necessity for additional particles or string vibrations in unification physics.

It can then be said, that the meeting or intersection of the OR with the Kernel K occurs at the IR in the form of neutrinos and anti-neutrinos emitted by the kernel as the partners for the OR manifesting as three leptonic generations in electron, muon and tauon to define the weak interaction bosons in the weakons and the Z-Boson. The weakons so display the bosonic nature of the original X/L bosons but allow a partitioning of the boson integral spin momentum in a sharing between the fermionic kernel and the fermionic outer ring. The quantum geometry indicated then allows a decomposition of the weakons into leptonic generations and the Z-Boson to assume the weak interaction energy in the form of massless gluons becoming mass induced by the quantum geometric template of a scalar Higgs field as Majorana neutrinos. This can be illustrated in the quantum chromodynamics of the trisection of both kernel and rings as the mixing of colour charges as indicated.

Subtracting the L-Boson mass from the K-Boson mass then sets particular energy intervals shown following in the diquark hierarchies found in the quantum geometry of Quantum Relativity. The energy interval for the KKK kernel then becomes (282.6487 MeV* - 319.6637 MeV*) and is defined as a Kernel-Ring-Cross-Coupling constant, where 111.045/3 = 37.015 gives the appropriate energy range for a particular quark energy level for a ground state GS:

$$\mathbf{GS = GS_{n-1} + 2g_{n-1} + ULM^{n-2} .\{ \tfrac{1}{3}e^-;\tfrac{2}{3}e^-\}}$$
$$\mathbf{= \text{Iterative Kernel GS + Ring Perturbation}}$$

$$\text{Matrix } |VPE| = \begin{bmatrix} K_1 & K_2 \\ L_1 & L_2 \end{bmatrix} = \begin{bmatrix} a & b \\ c & d \end{bmatrix} \text{ for Det}|VPE| = ad - bc = 0 = K_1L_2 - K_2L_1 = (46.100)(1.501) - (14.113)(4.903) = g_{L1}(mu) - g_{L2}(md)$$

$$\text{Matrix } |md;mu| = \begin{bmatrix} L_1 & L_2 \\ L_1 & -L_2 \end{bmatrix}\begin{bmatrix} 1 \\ 1 \end{bmatrix} = \begin{bmatrix} L_1 + L_2 \\ L_1 - L_2 \end{bmatrix} \text{ for Det}|md;mu| = -2L_1L_2 \quad \text{with } |md;mu|^{-1} = \frac{-1}{2L_1L_2}\begin{bmatrix} -L_2 & -L_2 \\ -L_1 & L_1 \end{bmatrix} = \frac{-1}{2mdmu}\begin{bmatrix} -mu & -mu \\ -md & md \end{bmatrix}$$

Linear dependency given by Det|VPE| = 0 and $g_{L1}/g_{L2} = K_1/K_2 = L_1/L_2$ = ULM = 3.2665...
For k={1;2;3;...8;9;10}={2;1;(u,d);s;(cU);b;M;D;t;S}:
For 2 Groundstates GS with n≥2:

Kernel-Ring Mixing Constant: $K_X/R_L = m_cY^n/3m_{LB}$ = 958.991/(3x111.045) = 2.8786858
for $n_{present}$ =1.1327117...

Nucleonic Upper Limit: $m_cY^n{}_{present} = 1.71175285\times10^{-27}$ kg* = 958.9912423 MeV*

Unitary Coupling Force: $\varpi(n_{present})/\surd\{Y^{npresent}\} = \#f(G).cf_{ps}\{alpha_E/alpha\}$
$= 2\pi cG_om_{planck}m_{ps}m_em_c\surd(Y^{npresent})/eh^2$ = 1.33606051
$alpha_E = 2\pi G_om_cm_e/hc$ for $m_c\surd(Y^n)$; as ring masses $m_{e,\mu,\tau}$ are constant in kernel masses
$alpha_G = 2\pi G_om_c^2/hc$ for kernel mass m_c as m_cY^n

Graviton-GI mass: $\#f(G)=alpha.m_{planck}/[ec]_{uimd}$ transforms m_{ps} from m_{planck} in m_{XB}

Coupling angle: $\theta ps(n_{present}) = Arcsin(X/\varpi(n_{present}))$ = Arcsin(0.4625...) = 27.553674°

Upper Bound Multiplier = 1/Lower Bound Multiplier

ULM = 1/LBM = $90°/\theta_{ps}(n_{present})$ = 3.26663521

Using those definitions allows construction for the diquark hierarchies following.

Reducing the atomic scaling to its intrinsic superstring dimension shows the Higgs Bosonic Restmass Induction, corresponding to the Dilaton of M-Theory.

Renormalizing the wavefunction B(n) about the FRB = -½ as maximum ordinate gives a probability y^2dV for y(0) = √(alpha/2π) for the renormalization.

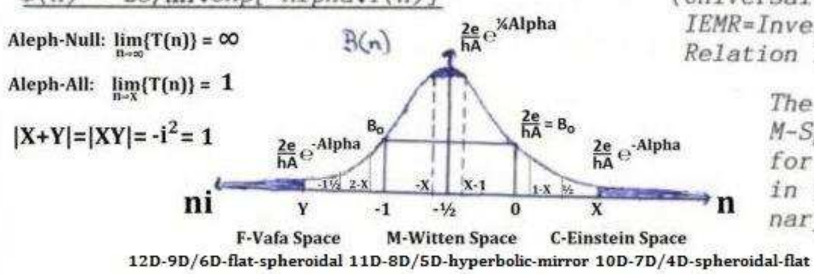
Alpha/2π being the probability of finding the FRB fluctuation for the interval [-X,X-1] in volume element dV as the uncertainty fluctuation.

This volume element defines the dimensional intersection from C-Space into F-Space via M-Space in the topological mapping of the complex Riemann C_∞-Space about the Riemann pole of the FRB as the Calabi-Yau superstring space in 10 dimensions.

with $T^2(n) = 1 = X(X+1) = -i^2 = -XY$ in the Feynman-Path-Integral as alternative quantum mechanical formulation for the equations of Schrödinger, Dirac and Klein-Gordon by: $T(n)=n(n+1)= |-n| +...+ |-3| + |-2| + |-1| + 0 + 1 + 2 + 3 +...+ n$

$B(n) = 2e/hA.\exp[-Alpha.T(n)]$

(Universal Cosmic Wavefunction or IEMR=Inverse-Energy-Magnetocharge-Relation for Superstring HE(8x8))



The universe is 'frozen' in M-Space at the X-coordinate for which T(n)=1 and imaged in the Y-coordinate as imaginary time n_i as function B(n)

T(n)=n(n+1) defines the summation of particle histories (Feynman) and B(n) establishes the v/c ratio of Special Relativity as a Binomial Distribution about the roots of the $XY=i^2$ boundary condition in a complex Riemann Analysis of the Zeta Function about a 'Functional Riemann Bound' FRB=-½.

X = ½(√5-1) = 0.618033...... and Y = -(X+1) = -½(√5+1) = -1.618033...

-X(X-1) = 0.236067... in analogue to X(X+1) = 1= T(n) and XY = X+Y = -1 = i^2 as the complex origin. But 0.236067...= X^3, so defining the 'New Unity' as $\#^3$ = Alpha and the precursive unity as the Cube root of Alpha or as # in the symmetry $\#:\#^3$ = SNI:EMI = {Strong Nuclear Interaction Strength}/{Electromagnetic Interaction Strength}.

The Strong-Interaction-Constant SIC = √Alpha = $\sqrt{e^2/2\varepsilon_o hc}$ = $\sqrt{60\pi e^2/h}$ in standard and in string units, reduces the SNI fine structure constant # by a factor $Alpha^{1/6}$; that is in the sixth root of alpha and so relates the SIC at the post quantization level as # to the pre-quantum epoch as SIC = √Alpha = $\#^{3/2}$.

The SNI is therefore so 11.7 times weaker at the XL-Boson 'Grand-Unification-Time' SEW.G of heterotic superstring class HO(32), then at the $E_{ps}E_{ss}$ time instantaneity S.EW.G of the superstring of the Quantum Big Bang in heterotic class HE(8x8) {this is the string class of Visi in the group theories}.

This then is the Bosonic Gauge Heterosis Coupling between superstrings HO(32) and HE(8x8). The coupling between superstrings IIA (ECosmic and manifesting the cosmic rays as superstring decay products) and IIB (Magnetic Monopole) derives directly from the B(n), with B(n=0) = J_o = 2e/hA

= 0.9927298 1/J* or 6.2705×10^9 GeV* and representative of the ECosmic string class and the super high energy resonances in the cosmic ray spectrum, bounded in the monopolar resonance limit of 2.7×10^{16} GeV*.

The Unity of the SNI transforms to $[1-X] = X^2$ and the EMI transforms as the Interaction of Invariance from X to X.
The Weak Nuclear Interaction or WNI as X^2 becomes $[1+X] = 1/X$ and the Gravitational Interaction or GI transforms as X^3 transforms to $[2+X] = 1/X^2$ by modular symmetry between X and Alpha and the encompassing Unification Unity: $[1-X][X][1+X][2+X] = 1$.

This Unification Polynomial $U(u) = u^4+2u^3-u^2-2u+1 = 0$ then has minimum roots (as quartic solutions) at the Phi = X and the Golden Mean Y = -(1+X).

This sets the coupling between SNI and EMI as X; the coupling between EMI and WNI becomes X^2 and the coupling between WNI and GI then is again X.

The general Force-Interaction-Ratio so is: SNI:EMI:WNI:GI = SEWG = $\#:\#^3:\#^{18}:\#^{54}$.

Typical decay rates for the nested fundamental interactions then follow the order in the light path lp = ct_k:

$t_{SNI} = R_e/c = 2.777...\times 10^{-15}$ m*/3×10^8 m*/s* = $0.925925...10^{-24}$ s*
(Order 10^{-23} s*)
$t_{EMI} = t_{SNI}/\alpha = 10^{-23}$ s*/(7.30×10^{-3}) = 1.37×10^{-21} s* ~ Order (10^{-21} s*)
$t_{WNI} = t_{SNI}/\alpha^6 = 10^{-23}$ s*/(1.51×10^{-13}) = 6.62×10^{-11} s* ~ Order (10^{-10} s*)
$t_{GI} = t_{SNI}/\alpha^{18} = 10^{-23}$ s*/(3.44×10^{-39}) = 2.91×10^{15} s* ~ Order (10^{15} s* ~ 92 million years characterizing the half-lives of trans uranium elements like Plutonium Pu-244 at 79×10^6 y)

This is the generalization for the cubic transform: $x \rightarrow x^3$ with the Alpha-Unity squaring in the functionality of the WNI and defining G-Alpha as Alpha^{18} in the Planck-Mass transforming in string bosonic reduction to a basic fundamental nucleonic mass (proton and neutrons as up-down quark conglomerates and sufficient to construct a physical universe of measurement and observation):

$m_c = m_{planck}$ Alpha^9 from the electromagnetic string unification with gravitation in the two dimensionless fine structures:

For Gravitational Mass Charge from higher D Magnetic Charge: $1 = 2\pi G_o.m_{planck}^2/hc$
For Electromagnetic Coulomb Charge as lower D Electric Charge: Alpha = $2\pi ke^2/hc$

Alpha as the universal master constant of creation, then becomes defined via the Riemann Analysis from $XY = i^2$ definition, reflecting in modulation in the statistical renormalization of the B(n) as the probability distributions in quantum wave mechanics, however.

U(u) has its maximum at u = -½ = FRB for U(-½) = 25/16 = $(5/4)^2$ for the B(n) supersymmetry. A symmetry for B(n) is found for B(n) = i^2 = -1.
(u)=0 for an FRB=½ indicating a cosmological relationship to the Riemann hypothesis with respect to the distribution of prime numbers and Riemann's zeta function.

The derivation of the HBRMI draws upon this definition process and sets the coupling angle as Arcsin(X/ϖ) for a Unitary 'Force' ϖ =(#f_G).cf_{ps}E-Alpha/Alpha and with the electron mass replacing the fundamental nucleon mass m_c in the definition of E-Alpha.

A disassociated GI unifies with the WNI in the L-Boson and is supersymmetric to an intrinsic unification between the SNI and the EMI as the X-Boson for the duality $f_G f_S = 1$ in modular definition of a characteristic GI-mass #f_G as the disassociated elementary gauge field interaction. The transformation of the 5 superstring classes proceeds in utilizing the self-duality of superstring IIB as the first energy transformation of the Inflaton in the Planck string class I trans mutating into the monopole string class IIB.

Wikipedia reference:
F-theory is a branch of string theory developed by Cumrun Vafa.[1] The new vacua described by F-theory were discovered by Vafa and allowed string theorists to construct new realistic vacua — in the form of F-theory compactified on elliptically fibered Calabi–Yau four-folds. The letter "F" supposedly stands for "Father".[2]

F-theory is formally a 12-dimensional theory, but the only way to obtain an acceptable background is to compactify this theory on a two-torus. By doing so, one obtains type IIB superstring theory in 10 dimensions. The SL(2,Z) S-duality symmetry of the resulting type IIB string theory is manifest because it arises as the group of large diffeomorphisms of the two-dimensional torus

The transformation of the 5 superstring classes proceeds in utilizing the self-duality of superstring IIB as the first energy transformation of the Inflaton in the Planck string class I trans mutating into the monopole string class IIB and residing in the 2-toroidal bulk space of Vafa as our Riemann 3-dimensional surface describing the VPE-ZPE of the micro quantum of the qbb. The E_{ps}-Weyl wormhole of topological closure so is holographically and conformally mapped onto the bulk space in 12 dimensions as a braned volumar evolving by mirror duality of the 11dimensional closed AdS membrane space of Witten's M-space as Vafa's F-space and mirroring the hyperbolic topology of 10-dimensional C-space as an open dS cosmology in an overall measured and observed Euclidean flatness of zero curvature.

Vafa's F-space so can be named the omniverse hosting multiple universes which are nested in parallel time space and defined in particular initial and boundary conditions valid and applicable for all universes as a multiversal parameter space.

The quantization of mass m so indicates the coupling of the Planck Law in the frequency parameter to the Einstein law in the mass parameter.

The postulated basis of M-Theory utilizes the coupling of two energy-momentum eigenstates in the form of the modular duality between so termed 'vibratory' (high energy and short wavelengths) and 'winding' (low energy and long wavelengths) self-states.
The 'vibratory' self-state is denoted in: $E_{ps}=E_{primary\ sourcesink} = hf_{ps} = m_{ps}c^2$ and the 'winding' and coupled self-state is denoted by: $E_{ss} = E_{secondary\ sinksource} = hf_{ss} = m_{ss}c^2$.
The F-Space Unitary symmetry condition becomes: $f_{ps}f_{ss} = r_{ps}r_{ss} = (\lambda_{ps}/2\pi)(2\pi\lambda_{ss}) = 1$

The coupling constants between the two eigenstates are so:
$E_{ps}E_{ss} = h^2$ and $E_{ps}/E_{ss} = f_{ps}{}^2 = 1/f_{ss}{}^2$ The Supermembrane $E_{ps}E_{ss}$ then denotes the coupled superstrings in their 'vibratory' high energy and 'winded' low energy self-state within an encompassing super eigen state of quantum entanglement.

The coupling constant for the vibratory high energy describes a maximized frequency differential over time in $df/dt|_{max} = f_{ps}{}^2$ and the coupling constant for the winded low energy describes its minimized reciprocal in $df/dt|_{min} = f_{ss}{}^2$.

F-Theory also crystallizes the following string formulations from the $E_{ps}E_{ss}$ super brane parameters.

Electromagnetic Fine structure: (Planck-Stoney QR units*)..........[EQ.6]
$\alpha_e = 2\pi k_e e^2/hc = e^2/2\varepsilon_0 hc = \mu_o e^2 c/2h = 60\pi e^2/h$
Gravitational Fine structure (Electron): $\alpha_g = 2\pi G_o m_e{}^2/hc = \{m_e/m_{planck}\}^2$
Gravitational Fine structure (Primordial Nucleon): $\alpha_n = 2\pi G_o m_c{}^2/hc$
Gravitational Fine structure (Planck Boson): $\alpha_{Planck} = 2\pi G_o m_{planck}{}^2/hc$

$1/E_{ps} = e^* = 2R_e c^2 = \sqrt{\{4\alpha hce^2/2\pi G_o m_e{}^2\}} = 2e\sqrt{\alpha}[m_P/m_e] = 2e\sqrt{\{\alpha_e/\alpha_g\}} = \{2e^2/m_e\}\sqrt{(k_e/G_o)}$
$= 2e^2/G_o m_e = e^2/2\pi\varepsilon_o m_e$ for $G_o = 1/k_e = 4\pi\varepsilon_o$
for a cosmological unification of fine structures in unitary coupling $E^*.e^*=1$ in $[Nm^2/kg^2]=[m^3s^{-2}/kg]=1/[Nm^2/C^2]=[C^2m^{-3}s^2/kg]$ for $[C^2]=[m^6/s^4]$
and $[C]=[m^3/s^2]$. $E_{ps} = 1/E_{ss} = 1/e^* = \sqrt{\{\alpha_g/\alpha_e\}}/2e = G_o m_e/2e^2$

Here e* is defined as the inverse of the sourcesink vibratory superstring energy quantum $E_{ps} = E^*$ and becomes a New Physical Measurement Unit is the Star Coulomb (C*) and as the physical measurement unit for 'Physical Consciousness'.

R_e is the 'classical electron radius' coupling the 'point electron' of Quantum- Electro-Dynamics (QED) to Quantum Field Theory (QFT) and given in the electric potential energy of Coulomb's Law in: $m_e c^2 = k_e e^2/R_e$; and for the electronic monopolar rest mass m_e.
Alpha α is the electromagnetic fine structure coupling constant $\alpha = 2\pi k_e e^2/hc$ for the electric charge quantum e, Planck's constant h and lightspeed constant c.

G_o is the Newtonian gravitational constant as applicable in the Planck-Mass
$m_P = \sqrt{(hc/2\pi G_o)}$ and the invariance of the gravitational parameter $G(n)M(n)=G_oX^n.m_cY^n$.

As the Star Coulomb unit describes the inverse sourcesink string energy as an elementary energy transformation from the string parametrization into the realm of classical QFT and QED, this transformation allows the reassignment of the Star Coulomb (C*) as the measurement of physical space itself.

The following derivations lead to a simplified string formalism as boundary- and initial conditions in a de Sitter cosmology encompassing the classical Minkowskian-Friedmann spacetimes holographically and fractally in the Schwarzschild metrics.

The magnetic field intensity B is classically described in the Biot-Savart Law:
$B = \mu_o qv/4\pi r^2 = \mu_o i/4\pi r = \mu_o q\omega/4\pi r = \mu_o Nef/2r$
for a charge count $q=Ne$; angular velocity $\omega=v/r=2\pi f$; current $i = dq/dt$ and the current element $i.dl = dq.(dl/dt) = vdq$.

The Maxwell constant then can be written as an (approximating) fine structure:
$\mu_o\varepsilon_o = 1/c^2 = (120\pi/c)(1/120\pi c)$ to crystallize the 'free space impedance' $Z_o = \sqrt{(\mu_o/\varepsilon_o)} = 120\pi \sim 377$ Ohm (Ω).

This vacuum resistance Z_o so defines a 'Unified Action Law' in a coupling of the electric permittivity component (ε_o) of inertial mass and the magnetic permeability component (μ_o) of gravitational mass in the Equivalence Principle of General Relativity.

A unified self-state of the pre-inertial (string- or brane) cosmology so is obtained from the fine structures for the electric- and gravitational interactions coupling a so defined electropolar mass to magnetopolar mass, respectively.

The Planck-Mass is given from Unity $1 = 2\pi Gm_P^2/hc$ and the Planck-Charge derives from Alpha$=2\pi k_e e^2/hc$ and where $k_e=1/4\pi\varepsilon_o$ in the electromagnetic fine structure describing the probability interaction between matter and light (as about 1/137).

The important aspect of alpha relates to the inertia coupling of Planck-Charge to Planck-Mass as all inertial masses are associated with Coulombic charges as inertial electropoles; whilst the stringed form of the Planck-Mass remains massless as gravitational mass. It is the acceleration of electropoles coupled to inertial mass, which produces electromagnetic radiation (EMR); whilst the analogy of accelerating magnetopoles coupled to gravitational mass and emitting electromagnetic monopolar radiation (EMMR) remains hitherto undefined in the standard models of both cosmology and particle physics.

But the coupling between electropoles and magnetopoles occurs as dimensional intersection, say between a flat Minkowskian spacetime in 4D and a curved de Sitter spacetime in 5D (and which becomes topologically extended in 6-dimensional Calabi-Yau tori and 7-dimensional Joyce manifolds in M-Theory).

The formal coupling results in the 'bounce' of the Planck-Length in the pre-Big Bang scenario, and which manifests in the de Broglie inflaton-instanton.

The Planck-Length $L_P = \sqrt{(hG/2\pi c^3)}$ 'oscillates' in its Planck-Energy $m_P = h/\lambda_P c = h/2\pi c L_P$ to give √Alpha).$L_P = e/c^2$ in the coupling of 'Stoney units' suppressing Planck's constant 'h' to the 'Planck units' suppressing charge quantum 'e'.

Subsequently, the Planck-Length is 'displaced' in a factor of about 11.7 = 1/√Alpha = $\sqrt{(h/60\pi)}/e$ and using the Maxwellian fine structures and the unity condition $k_eG_o=1$ for a dimensionless string coupling $G_o = 4\pi\varepsilon_o$, describing the 'Action Law' for the Vacuum Impedance as Action=Charge^2, say via dimensional analysis:

$Z_o = \sqrt{([Js^2/C^2m]/[C^2/Jm])} = [Js]/[C^2]$ = [Action/Charge^2] in Ohms [$\Omega = V/I = Js/C^2$] and proportional to [h/e^2] as the 'higher dimensional source' for the manifesting superconductivity of the lower dimensions in the Quantum Hall Effect (~e^2/h), the conductance quantum ($2e^2/h$) and the Josephson frequencies (~$2e/h$) in Ohms [Ω].

This derivation so indicates an electromagnetic cosmology based on string parameters as preceding the introduction of inertial mass (in the quantum Big Bang) and defines an intrinsic curvature within the higher dimensional (de Sitter) universe based on gravitational mass equivalents and their superconductive monopolar current flows.

A massless, but monopolar electromagnetic de Sitter universe would exhibit intrinsic curvature in gravitational mass equivalence in its property of closure under an encompassing static Schwarzschild metric and a Gravitational String-Constant $G_o = 1/k_e = 1/30c$ (as given in the Maxwellian fine structures in the string space).

In other words, the Big Bang manifested inertial parameters and the matter content for a subsequent Cosmo evolution in the transformation of gravitational 'curvature energy', here called gravita as precursor for inertia into inertial mass seedlings, both however describable in Black Hole physics and the Schwarzschild metrics.

The Gravitational Fine structure so derives in replacing the Planck-Mass m_P by a proto-nucleonic mass: $m_c = \sqrt{(hc/2\pi G_o)}$.f(alpha) = f(Alpha).$m_P$ and where f(Alpha) = Alpha^9.

The Gravitational fine structure, here named Omega, is further described in a five folded supersymmetry of the string hierarchies, the latter as indicated in the following below in excerpt. This pentagonal supersymmetry can be expressed in a number of ways, say in a one-to-one mapping of the Alpha fine structure constant as invariant X from the Euler Identity: $X+Y = XY = -1 = i^2 = \exp(i\pi)$.

One can write a Unification Polynomial: $(1-X)(X)(1+X)(2+X) = 1$ or $X^4+2X^3-X^2-2X+1 = 0$ to find the coupling ratios: f(S)¦f(E)¦f(W)¦f(G) = #¦#^{3}¦#^{18}¦#^{54} from the proportionality

#¦#^{3}¦{[(#^{3})^2]}^{3}¦({[(#^{3})^2]}^{3})^3 = Cube root(Alpha):Alpha:Cuberoot(Omega):Omega.

The Unification polynomial then sets the ratios in the inversion properties under modular duality:

(1)[Strong short]¦(X)[Electromagnetic long]¦(X^2)[Weak short]¦(X^3)[Gravitational long] as 1¦X¦X^2¦X^3 = (1-X)¦(X)¦(1+X)¦(2+X).

Unity 1 maps as (1-X) transforming as f(S) in the equality (1-X) = X^2; X maps as invariant of the function f(E) in the equality (X) = (X); X^2 maps as (1+X) transforming as f(W) in the equality (1+X) = 1/X; and X^3 maps as (2+X) transforming as f(G) in the equality (2+X) = $1/X^2$ = 1/(1-X). The mathematical pentagonal supersymmetry from the above then indicates the physicalised T-duality of M-theory in the principle of mirror-symmetry and which manifests in the reflection properties of the heterotic string classes HO(32) and HE(64), described further in the following.

Defining f(S) = # = 1/f(G) and f(E) = $\#^2$.f(S) then describes a symmetry breaking between the 'strong S' f(S) interaction and the 'electromagnetic E' f(E) interaction under the unification couplings.

This couples under modular duality to f(S).f(G) = 1 = $\#^{55}$ in a factor $\#^{-53}$ = f(S)/f(G) = $\{f(S)\}^2$ of the 'broken' symmetry between the long range- and the shortrange interactions.
SEWG = 1 = Strong-Electromagnetic-Weak-Gravitational as the unified supersymmetric identity then decouples in the manifestation of string-classes in the de Broglie 'matter wave' epoch termed inflation and preceding the Big Bang, the latter manifesting at Weyl-Time as a string transformed Planck-Time as the heterotic HE(64) class.

As SEWG indicates the Planck-String (class I, which is both open ended and closed), the first transformation becomes the suppression of the nuclear interactions sEwG and describing the self-dual monopole (string class IIB, which is loop-closed in Dirichlet brane attachment across dimensions say Kaluza-Klein R^5 to Minkowskian R^4 or Membrane-Space R^{11} to String Space R^{10}).

The monopole class so 'unifies' E with G via the gravitational fine structure assuming not a Weylian fermionic nucleon, but the bosonic monopole from the kG_o = 1 initial-boundary condition $Gm_M{}^2 = k_e e^2$ for $m_M = k_e e$ = 30[ec] = m_P√Alpha.
The Planck-Monopole coupling so becomes $m_P/m_M = m_P$/30[ec] = 1/√Alpha with f(S) = f(E)/$\#^2$ modulating

f(G) = $\#^2$/f(E)=1/# ↔ f(G){f(S)/f(G)} = # in the symmetry breaking f(S)/f(G) = 1/$\#^{53}$ between short (nuclear asymptotic) and long (inverse square).

The short-range coupling becomes f(S)/f(W) = #/$\#^{18}$ = 1/$\#^{17}$ = Cube root(Alpha)/Alpha^6 and the long-range coupling is Alpha/Omega = 1/Alpha^{17} = $\#^3/\#^{54}$ = 1/$\#^{51}$ = $1/(\#^{17})^3$.

The strong nuclear interaction coupling parameter so becomes about 0.2 as the cube root of alpha and as measured in the standard model of particle physics in the form of an energy dependent 'running coupling constant' and which takes a value of α_Z = 0.1184 at the energy level of the Z^o weakon at about 92 GeV.

The monopole quasi-mass [ec] describes a monopolar source current ef from the unification identity $1/e^*f_{ps}$ = h = E^*/f_{ps} as a fine structure for Planck's constant h, manifesting for a displacement λ=c/f. This is of course the GUT unification energy of the Dirac Monopole at precisely [c^3] eV or 2.7×10^{16} GeV and the upper limit for the Cosmic Ray spectra as the physical manifestation for the string classes: {I, IIB, HO(32), IIA and HE(64) in order of modular duality transmutation}.

The transformation of the Monopole string into the XL-Boson string decouples Gravity from sEwG in sEw.G in the heterotic superstring class HO(32). As this heterotic class is modular dual to the other

heterotic class, HE(64), it is here, that the proto nucleon mass is defined in the modular duality of the heterosis in:
Omega = Alpha^{18} = $2\pi G_o m_c^2/hc = (m_c/m_P)^2$.

The HO(32) string bifurcates into a quarkian X-part and a leptonic L-part, so rendering the bosonic scalar spin as fermionic half spin in the continuation of the 'breaking' of the supersymmetry of the Planckian unification. Its heterosis with the Weyl-string then decouples the strong interaction at Weyl-Time for a Weyl-Mass m_W, meaning at the time instanton of the end of inflation or the Big Bang in sEw.G becoming s.Ew.G.

The X-Boson then transforms into a fermionic proto nucleon triquark-component (of energy ~ 10^{-27} kg or 560 MeV) and the L-Boson transforms into the proto-muon (of energy about 111 MeV).

The electroweak decoupling then occurs from a time marker about 1/140th of a second from the QBBS at a temperature of 1.658×10^{15} K* for a Fermi-Expectation Energy about 1/365 seconds after the Big Bang at a temperature of about 3.4×10^{15} K and at a 'Higgs Boson' energy of about 298 GeV.

A Bosonic decoupling preceded the electroweak decoupling about 2 nanoseconds into the cosmogenesis at the Weyl-temperature of so $T_{Weyl} = T_{max} = E_{Weyl}/k_B = 1.4 \times 10^{20}$ K as the maximum Black Hole temperature maximized in the Hawking MT modulus and the Hawking-Gibbons formulation: $M_{critical}T_{min} = ½M_{Planck}T_{Planck} = (hc/2\pi G_o)(c^2/2k_B) = hc^3/4\pi k_B G_o$ for $T_{min} = 1.4 \times 10^{-29}$ K and Boltzmann constant k_B.

The Hawking Radiation formula results in the scaling of the Hawking MT modulus by the factor of the 'Unified Field' spanning a displacement scale of 8π radians or 1440° in the displacement of $4\lambda_{ps}$.

The XL-Boson mass is given in the quark-component: $m_X = \#^3 m_{Weyl}/[ec]|_{mod} = 1.9 \times 10^{15}$ GeV modulated in (SNI/EMI=∛{Alpha}/[Alpha]), the intrinsic unified Strong-Electroweak Interaction-Strength for the Kernel part in the Quark-Lepton hierarchy.
The LX-Boson mass is given in the lepton-component: m_L = Omega.[ec]/$\#^2$ = ([Omega]x([ec])/(m_{ps}.∛(α^2) = $\#^{52}[ec/m_{Weyl}]$ ~ 111 MeV in functional operators f(G)xf(S) = 1 for the Ring part in the Quark-Lepton hierarchy.

In particular f(G)/m_{planck} ↔ $\#^2$/[ec] for #(m_{ps}/m_{planck})f(G) and the X-Boson and f(S).m_{planck} ↔ [ec]/$\#^2$ for $\#^{54}$[(m_{planck}/m_{ps})f(S) for the L-Boson.

The X-Boson's mass is: ([Alpha α]xm_{ps}/[ec]) modulated in (SNI/EMI=∛{Alpha}/[Alpha]), the intrinsic unified Strong-Electroweak Interaction-Strength and the L-Boson's mass in: ([Omega]x([ec])/(m_{ps}.∛(α^2).

When the heavy electron known as the muon was accidentally discovered in the late 1930s, Nobel physicist Isidor Isaac Rabi famously remarked, "Who ordered that?"

It is this lepton component which necessitates the existence of the muon (and the tauon and their neutrino partners as constituents of the weak interaction gauge bosons) as a 'heavy electron', as the quantum geometry defines the muon mass in a decoupling of the L_1 energy level given in a diquark hierarchy and based on a quantum geometry of the quantum relativity:

Ten DIQUARK quark-mass-levels crystallize, including a VPE-level for the K-IR transition and a VPE-level for the IR-OR transition:

The K-Means define individual materializing families of elementary particles:

a (UP/DOWN-Mean) sets the (PION-FAMILY: π^o, π^+, π^-).

a (STRANGE-Mean) specifies the (KAON-FAMILY: K^o, K^+, K^-).

a (CHARM-Mean) defines the (J/PSI=J/Ψ-Charmonium-FAMILY).

a (BEAUTY-Mean) sets the (UPSILON=Y-Bottonium-FAMILY).

a (MAGIC-Mean) specifies the (EPSILON=E-FAMILY).

a (DAINTY-Mean) bases the (OMICRON-O-FAMILY).

a (TRUTH-Mean) sets the (KOPPA=K-Topomium-FAMILY) and

a (SUPER-Mean) defines the final quark state in the (HIGGS/CHI=H/X-FAMILY).

Quark Level	**Kernel-Energy in MeV***	**K-Mean(x½) in MeV***	**Ring-Energy in MeV***	**IR-OR.Mean.in.MeV***	**Ground state K-Mean-IR-OR-Mean**	**Comment**
VPE-Level [K-IR]	26.4924-29.9618	**g_{L2} = 14.11355**	2.8175-3.1865	L_2 = 1.5010 = mu	12.6126	K-IR VPE
VPE-Level [IR-OR]	86.5334-97.8657	**g_{L1} = 46.100**	9.2030-10.408	L_1 = 4.9028 = md	$GS_2=GS_{VPE}$= 41.198 $m_s=2g_{L1}+L_1+L_2$ $=g_{L1}+g_{L2}+2L_{u,d}+L_1+L_2$ =98.645; 98.604 $\Delta_s = 0.041$ $= g_{L2} - g_{L1} + 2L_{u,d}$	IR-OR VPE Ground-OR electron level
Quark UP/DOWN-Level u=K; d=K+IR ubar=Kbar; dbar=Kbar+IRbar	282.6487-319.6637	**$g_{u,d}$ = 150.5781**	30.060-33.997	$L_{u,d}$ = 16.014	$GS_3=GS_{u,d}$= 134.5641 Pionium	K-KIR basis
Quark STRANGE-Level s=K+OR sbar=Kbar+ORbar	923.2302-1,044.13	**g_s = 491.8401**	98.187-111.045 muon energy	Ls = 52.308	$GS_4=GS_s$= 439.5321 Kaonium	KIR-KOR basis 1st (K)-OR-Muon level d↔s KIR↔KOR Resonance

Diquark CHARM-Level c=U.ubar=uu.ubar cbar=Ubar.u =(uu)bar.u	3,015.59- 3,410.51	**g_{cU} = 1,606.53** **g_{cU}-L_{cU}-$g_{u,d}$ =mcU*= 1,285.09**	320.71- 362.71	L_{cU} = 170.86	GS_5=GS_{cU}= 1,435.67 Charmonium Pole mass =GS_{cU}+0.L_{cU}= 1,435.67	**active singlet apparent**
Diquark BEAUTY-Level BOTTOM-Level b=(ud)bar =(ud).ubar bbar=(ud) =(ud)bar.u	9,849.99- 11,139.93	**g_b = 5,247.48** **g_b-L_b-g_s =mb*= 4,197.56**	1,047.6- 1,184.7	L_b = 558.08	GS_6=GS_b= 4,689.40 Bottonium Pole mass =GS_b+0.L_b +½(g_{L1}+g_{L2})= 4,719.51	**active doublet apparent**
Diquark MAGIC-Level M=(us)bar =(us).ubar Mbar=(us) =(us)bar.u	32,173.6- 36,386.9	**g_M = 17,140.13**	3,421.7- 3,869.8	L_M = 1,822.88 max Tauon energy	GS_7=GS_M= 15,317.25 Magiconium Pole mass =GS_M+½L_M +½(g_{L1}+g_{L2})+ ½(L_1+L_2)= 16,262.00	suppressed doublet-1 in 2nd K-OR-Tauon level M=us and M.Mbar=VPE in b.bbar resonance
Diquark DAINTY-Level D=(dd)bar =(ud).dbar Dbar=(dd) =(ud)bar.d	105,090- 118,852	**g_D = 55,985.5**	11,177- 12,640	L_D = 5,954.25	GS_8=GS_D= 50,031.25 Daintonium Pole mass =GS_D+0.L_D +(g_{L1}+g_{L2})= 50,091.46	suppressed triplet-1 in D=dd and D.Dbar=VPE in no IROR oscillation
Diquark TRUTH-Level TOP-Level t=(ds)bar =(ud).sbar tbar=(ds) =(ud)bar.s	343,261- 388,214	**g_t = 182,869** **g_t-L_t+g_s =mt*= 163,912.6**	36,506- 41,287	L_t = 19,448.25	GS_9=GS_t= 163,420.75 Toponium Pole mass =GS_t+½.L_t +(g_{L1}+g_{L2})+ ½(L_1+L_2)= 173,208.3	**active triplet apparent**
Diquark SUPER-Level S=(ss)bar =(us)sbar Sbar=(ss)=(us)bar.s	1,120,592- 1,268,044	**g_S = 597,159.0**	119,243- 134,858	L_S = 63,525.27	GS_{10}=GS_S= 533,633.73 Superonium Pole mass =GS_S+L_S +(g_{L1}+g_{L2})+ (L_1+L_2)= 597,225.6	suppressed triplet-2 in S=ss and S.Sbar=VPE in no ORIR oscillation

Quarkian Hierarchies in the Unified Field of Quantum Relativity

Operator $A\{u;d;s\} \Rightarrow \overline{c}$ $\qquad$ $c \Leftarrow$ Operator $B=A^*\{u^*;d^*;s^*\}$

$$[-\tfrac{2}{3}-\tfrac{2}{3}].[+\tfrac{2}{3}+\tfrac{2}{3}] \qquad\qquad [+\tfrac{2}{3}+\tfrac{2}{3}].[-\tfrac{2}{3}-\tfrac{2}{3}]$$

$$\overline{uu}\,.\,uu = \overline{U}\,.\,U \left\{\begin{array}{l} u[+\tfrac{2}{3}] \\ d[-\tfrac{1}{3}] \\ s[-\tfrac{1}{3}] \end{array}\right. \qquad \left.\begin{array}{l} [-\tfrac{2}{3}]dd=\overline{D} \\ [+\tfrac{1}{3}]ud=\overline{b} \\ [+\tfrac{1}{3}]us=\overline{M} \end{array}\right\} t\,S\,.\,\overline{S\,t} = \overline{dsss}\,.\,sssd$$

$$[-\tfrac{4}{3}].[+\tfrac{4}{3}] = [\ 0\ ] \qquad [\ 0\ ] \qquad [\ 0\ ] \qquad [\ 0\ ] = [+\tfrac{4}{3}].[-\tfrac{4}{3}]$$

$\overline{U}u = \overline{u}.\overline{u}u = \overline{c}$
$\overline{U}d = \overline{u}.\overline{u}d = \overline{c} + IR$
$\overline{U}s = \overline{u}.\overline{u}s = \overline{c} + OR$

$St\overline{D} = \overline{sssd}.dd = c$
$St\overline{b} = \overline{sssd}.ud = c + \overline{IR}$
$St\overline{M} = \overline{sssd}.us = c + \overline{OR}$

$Uu = uuu = \Delta^{++}$
$Ud = uuu + IR = \Delta^{+} = \Delta^{++} + IR$
$Us = uuu + OR = \Sigma^{*+} = \Delta^{++} + OR$

$\overline{StD} = sssd.dd = 2\Delta^{++} + 3IR + 3OR$
$\overline{Stb} = sssd.ud = 2\Delta^{++} + 2IR + 3OR$
$\overline{StM} = sssd.us = 2\Delta^{++} + 1IR + 4OR$

Matrix $|VPE| = \begin{bmatrix} K_1 & K_2 \\ L_1 & L_2 \end{bmatrix} = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ **for** $\mathrm{Det}|VPE| = ad - bc = 0 = K_1L_2 - K_2L_1$ $= (46.100)(1.501) - (14.113)(4.903) = g_{L1}(mu) - g_{L2}(md)$

Matrix $|md;mu| = \begin{bmatrix} L_1 & L_2 \\ L_1 & -L_2 \end{bmatrix}\begin{bmatrix} 1 \\ 1 \end{bmatrix} = \begin{bmatrix} L_1 + L_2 \\ L_1 - L_2 \end{bmatrix}$ **for** $\mathrm{Det}|md;mu| = -2L_1L_2$ **with** $|md;mu|^{-1} = \frac{-1}{2L_1L_2}\begin{bmatrix} -L_2 & -L_2 \\ -L_1 & L_1 \end{bmatrix} = \frac{-1}{2mdmu}\begin{bmatrix} -mu & -mu \\ -md & md \end{bmatrix}$

Linear dependency given by $\mathrm{Det}|VPE| = 0$ **and** $g_{L1}/g_{L2} = K_1/K_2 = L_1/L_2 = ULM = 3.2665...$
For $k=\{1;2;3;...8;9;10\}=\{2;1;(u,d);s;(cU);b;M;D;t;S\}$:
For 2 Groundstates GS with $n\geq 2$:

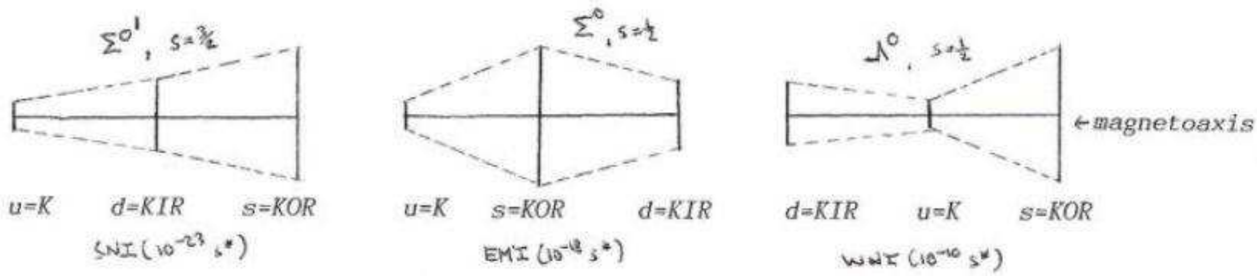
d*=s IR-OR Oscillation; i.e. neutron decay

$GS_n = GS_{n-1} + 2g_{n-1} + (ULM)^{n-2}.\ \{\tfrac{1}{3}e^-;\ \tfrac{2}{3}e^-\} - \Delta_s$ $\qquad$ $\{\Delta_s = g_{L2} - g_{L1} + 2L_{u,d}$ **as the [u,d]-[s] strange quark perturbation}**

particle	most symmetric quantum geometry	basic.symbol.energy partitioning for groundstates g_k (+Δ)	energy values	energy * MeV*	energy SI MeV	particle name
p^+	u.d.u=KKIRK	$m_K+[L_2]-[e^-]-\tfrac{1}{3}[e^-]$	939.776+1.5013-0.5205-0.1735	940.5833	938.270	charged proton
n^o	d.u.d=KIRKKIR	$m_K+2[L_2]-2[e^-]+\tfrac{1}{3}[e^-]-\Delta_s$	939.776+3.0026-1.0410+0.1735-0.041	941.8701	939.554	neutral neutron
$\mu^\pm$	OR* in 1st OR oscillation	$m_L - L_1 - \Delta$ n[L_s : 98.19-111.05]	111.04536-(4.9028+Δ)	106.143-Δ	105.6584	charged muon
$\tau^\pm$	OR** **in 2nd OR** oscillation	$L_M - m_L + 2g_s + L_s + L_{ud} + \Delta$	1822.88-111.05+0.9837+52.31+16.01+Δ =1712.81+68.32+Δ	1781.13+Δ	1776.86	charged tauon

π^o	u.ubar; d.dbar	$m_{gu,d} - L_{u,d} + e^- + ⅓e^- + \Delta$	150.5781-16.014+0.6940+Δ	135.258+Δ	134.9776	neutral pion ground state
$\pi^\pm$	u.dbar; ubar.d	$m_{gu,d} - L_{u,d} + L_1 + e^- + \Delta$ $\pi^o + L_1 - ⅓e^- + \Delta$	150.5781-16.014+4.9028+~e⁻ +Δ 135.258+4.9028-0.1735+Δ	139.987+Δ 139.987+Δ	139.5702	charged pion
λ^o	d.u.s	$m_n{}^o + m_\pi{}^o + g_{L2} - L_1 + \Delta$	941.911+135.26+ 46.100-4.903+Δ	1118.37+Δ	1115.683	neutral lambda

The importance of Kernel-Symmetry so is evidenced in the differentiation of the quarkian permutations and specifying for example the KKIRKOR quark state uds as a tripartite symmetry of u.d.s (least stability as SNI-decaying Sigma°' resonance) and u.s.d (EMI-stable Sigma° particle) and d.u.s (WNI-most stable Lambda° particle).



1-10-19	AJS/ajs	ΑΙΣ/αισ	Aleph-א	Yod-י	Shin-ש	dud = n^o d(-½)u(½)d(-½) QGS Neutron(0)	ud=b=K+KIR=KKIR udd=ddu=KKK+IRIR dd=D=KIRKIR uD=bd=db=Du	udd=ddu=Δ^o u(-½)d(-½)d(-½) SNI Delta(0)
2-11-20	BKT/bkt	ΒΚΤ/βκτ	Bet-ב	Kaf-כ	Tav-ת	udu = p^+ u(-½)d(½)u(-½) QGS Proton(+)	du=b=KIR+K=KIRK duu=uud=KKK+IR uu=U=KK dU=bu=ub=dU	duu=uud=Δ^+ d(-½)u(-½)u(-½) SNI Delta(+)
3-12-21	CLU/clu	ΓΛΥ/γλυ	Gimel-ג	Lamed-ל	Tet-ט	usu = Σ^+ u(-½)s(½)u(-½) QGS Sigma(+)	su=m=KOR+K=KORK suu=uus=KKK+OR uu=U=KK sU=mu=um=Us	suu=uus=Σ^+ s(-½)u(-½)u(-½) SNI Sigma(+)
4-13-22	DMV/dmv	ΔΜΨ/δμψ	Dalet-ד	Mem-מ	Tsadi-צ	dsd = Σ^- d(-½)s(½)d(-½) QGS Sigma(-)	sd=t=KOR+KIR=KORKIR sdd=dds=KKK+IRIROR dd=D =KKIRIR sD=td=dt=Ds	sdd=dds=Σ^- s(-½)d(-½)d(-½) SNI Sigma(-)
5-14-23	ENW/enw	ΕΝΩ/ενω	He-ה	Nun-נ	Ghayin-	sus = Ξ^o s(-½)u(½)s(-½) QGS Xi-Chi(0)	us=m=K+KOR=KKOR uss=ssu=KKK+OROR ss=S=KORKOR uS=ms=sm=Su	uss=ssu= Ξ^o u(-½)s(-½)s(-½) SNI Xi-Chi(0)
6-15-24	FOX/fox	ΦΟΧ-Ξ/φοχ-ξ	Vav-ו	Ayin-ע	Samekh-ס	sds = Ξ^- s(-½)d(½)s(-½) QGS Xi-Chi(-)	ds=t=KIR+KOR=KIRKOR dss=ssd=KKK+IROROR ss=S=KORKOR dS=ts=st=Sd	dss=ssd= Ξ^- d(-½)s(-½)s(-½) SNI Xi-Chi(-)
7-16-25	GPY/gpy	Γ*ΠΥ*/γ*πυ*	Gimel*-ג*	Pe-פ	Tet*-ט*	uds=sdu=Σ^{o*} u(-½)d(-½)s(-½) SNI* Sigma*(0)	Uubar=K+K-VPE-$\overline{K}$ = c =u.ūu uuu=uU=Uu=KKK SNI-Deacay {-½-1}	uuu= Δ^{++} u(-½)u(-½)u(-½) SNI Delta(++)
8-17-26	HQZ/hqz	ΗΘΖ/ηθζ	Het-ח	Qof-ק	Zayin-ז	usd=dsu=Σ^o u(-½)s(½)d(-½) EMI* Sigma(0)	Ddbar=KIR+KIR-VPE-$\overline{KIR}$ ddd=dD=Dd=KKK+IRIRIR EMI-Decay {-½}	ddd= Δ^- d(-½)d(-½)d(-½) EMI Delta(-)
9-18-27	IRA*/ira*	Ι*ΡΑ*/ι*ρα*	Yod*-י*	Resh-ר	Aleph*-א*	dus=sud=Λ^o d(-½)u(½)s(-½) QGS* Lambda(0)	Ssbar=KOR+KOR-VPE-$\overline{KOR}$ sss=sS=Ss=KKK+ORORОR WNI-Decay {-½}	sss = Ω^- s(-½)s(-½)s(-½) WNI Omega(-)

Mathimatia: **3x3x3 = 27 Permutations YCM for 18+9 elementary particles**

Quantum Spin -½+½-½=-½ QGS = Quantum Geometric Symmetry -½-½-½=-½-1 Quantum Spin

The VPE-Means are indicators for average effective quark masses found in particular interactions.

Kernel-K-mixing of the wavefunctions gives K(+) = 60.214 MeV* and K(-) = 31.986 MeV* and the IROR-Ring-Mixing gives (L(+) = 6.404 MeV* and

L(-) = 3.402 MeV*) for a (L-K-Mean of 1.5010 MeV*) and a (L-IROR-Mean of 4.9028 MeV*); the Electropole ([e-] = 0.52049 MeV* and 3x(0.17350 MeV* for $e^{\pm}/3$) as the effective electron mass and as determined from the electronic radius and the magneto charge in the UFoQR.

The rest masses for the elementary particles can now be constructed, using the basic nucleonic Restmass (m_c=9.9247245x10^{-28} kg*=(√(Omegaxm$_P$) for n_p as 1.71175286x10^{-27} kg* or 958.99 MeV* and setting as the basic maximum

(UP/DOWN-K-mass=mass(KERNEL CORE)=3xmass(KKK)=3x319.6637 MeV*=958.991 MeV*).

Subtracting the (Ring VPE 3xL(+) =19.215 MeV*, one gets the basic nucleonic K-state for the atomic nucleus (made from protons and neutrons) in: {m(n^0;p^+) = 939.776 MeV*}.

A best approximation for Newton's Gravitational constant 'Big G' hence depends on an accurate determination for the neutron's inertial mass, only fixed as the base nucleon minimum mass at the birth of the universe. A fluctuating Neutron mass would also result in deviations in 'G' independent upon the sensitivity of the measuring equipment. The inducted mass difference in the protonic-and neutronic rest masses, derives from the Higgs-Restmass-Scale and can be stated in a first approximation as the ground state.

A basic nucleon rest mass is m_c=√Omega.m$_P$ = 9.9247245x10^{-28} kg* or 958.99 MeV*. (Here Omega is a gauge string factor coupling in the fundamental force interactions as: Cube root(Alpha):Alpha:Cuberoot(Omega):Omega and for Omega = G-alpha.)

KKK-Kernel mass = Up/Down-HiggsLevel=3x319.66 MeV*= 958.99 MeV*, using the Kernel-Ring and Family-Coupling Constants.

Subtracting the Ring-VPE (3L) gives the basic nucleonic K-State as 939.776 MeV*. This excludes the electronic perturbation of the IR-OR oscillation.

For the Proton, one adds one (K-IR-Transition energy) and subtracts the electron-mass for the dquark level and for the Neutron one doubles this to reflect the up-down-quark differential.

An electron perturbation subtracts one 2-2/3=4/3 electron energy as the difference between 2 leptonic rings from the proton's 2 up-quarks and 2-1/3=5/3 electron energy from the neutron' singular up-quark to relate the trisected nucleonic quark geometric template. The neutron’s down-strange oscillation, enabling its beta decay into a left-handed proton, a left-handed electron and a right-handed antineutrino subtracts
$\Delta_s = g_{L2} - g_{L1} + 2L_{u,d}$ = 0.041 MeV* as a d* = s quark differential.

Proton m_p=u.d.u=K.KIR.K=(939.776+1.5013-0.5205-0.1735) MeV* = 940.5833 MeV* (938.270 MeV).

Neutron m_n=d.u.d=KIR.K.KIR=(939.776+3.0026-1.0410+0.1735-0.041) MeV* = 941.8701 MeV* (939.554 MeV).

This is the ground state from the Higgs-Restmass-Induction-Mechanism and reflects the quarkian geometry as being responsible for the inertial mass differential between the two elementary nucleons. All ground state elementary particle masses are computed from the Higgs-Scale and then become subject to various fine structures. Overall, the measured gravitational constant 'G' can be said to be decreasing over time.

The Higgs Boson HB is said of having been measured in the decay of W's, Z's, and Tau Leptons, as well as the bottom- and top-quark systems described in the table and the text addressing K-KIR-KOR transitions. The K means core for kernel and the IR means Inner Ring and the OR mean Outer Ring. The Rings are derivatives from the L-Boson of the HO(32 string class) and the Kernels are the products of the decay of the X-Boson from the same brane source. So the Tau-decay relates to 'Rings' which are charmed and strange and bottomized and topped, say. They are higher energy manifestations of the basic nucleons of the proton and the neutrons and basic mesons and hyperons.

The energy resonances of the Z-boson (uncharged) represents an 'average' or statistical mean value of the 'Top-Quark' and the Upper-Limit for the Higgs Boson is a similar 'Super-Quark' 'average' and as the weak interaction unification energy.

A postulated energy for the Higgs Boson of so 110 GeV is the Omicron-resonance, is inferred from the table above.

The most fundamental way to generate the Higgs Boson as a 'weak interaction' gauge is through the coupling of two equal mass, but oppositely charged W-bosons (of whom the Z^o is the uncharged counterpart).

The W-mass is a summation of all the other quark-masses as kernel-means from the strangeness upwards to the truth-quark level.

Then doubling the 80.622 GeV* and 80.424 GeV mass of the weak-interaction gauge boson must represent the basic form of the Higgs Boson and that is 161.244 GeV* or 160.847 GeV as a function of the electro-weak coupling and related as a 'charged current' weak interaction to a 'neutral current' interaction mediated by the Z^o boson of energy about 91 GeV* to sum for a 'Vacuum Expectation Value' of about 252 GeV*.

Higgs Boson Weakon WNI-Mass $M_{HBWZ} = \{W^- + W^+ + Z^o\}$ GeV* = {80.622 + 80.622 + 91.435} GeV* = 252.68 GeV*

{(14.11355+46.100)+(1.5010+4.9028)+(150.571+491.8401+1,606.53+5,247.48+17,140.13+55,985.5)+(182,869)+(597.159.0)}
= {60.2136}+{6.404}+{80,622.05}+{182,869}+{597,159} =
{66.6618}+{80,622.05}+{2x91,434.5}+{2x298,580} = 860,716.7 MeV*

Kernel-Inner Ring VPE = 0.04611 GeV*

Kernel-Outer Ring VPE = 0.01411 GeV*

Pion-(KIR-Quark d)-VPE = 0.1501 GeV*

Kaon-(KOR-Quark s=d*)-VPE = 0.4918 GeV*

Charm-(Diquark U=uu)-VPE = 1.60653 GeV*

Bottom-(Diquark b=ud)-VPE = 5.24748 GeV*

Magic-(Diquark m=us)-VPE = 17,140.13 GeV*

Dainty-(Diquark D=dd)-VPE = 55,985.5 GeV*

Top-(Diquark t=ds)-VPE = 182,869 GeV*

Super-(Diquark S=ss)-VPE = 597,159 GeV*

Quark q	**Diquark Structure qq**	**Manifesto**		**Mean-Kernel-Mass GeV***	**Mean-Ring-Mass GeV***	**Higgs Boson Mass Integration**
Kernel-Outer Ring VPE_1	K↔IR↔OR Kernel-Mesonic-Leptonic	KIR=d KOR=s		K_1 0.01411355	L_1 0.0015010	
Kernel-Inner Ring VPE_2	K↔IR Kernel-Mesonic	K=u		K_2 0.046100	L_2 0.0049028	$\frac{1}{2}(K_2-L_2)$ 0.0206
Pion-(KIR-Quark d)	Base KIR Quark	uq, dq		0.1505781	0.016014	∑(d) =0.1506
Kaon-(KOR-Quark s=d*)	Resonance KOR Quark	sq		0.49184	0.052308	∑(d+s) =0.6419
Charm-(Diquark U=uu)	Diquark Singlet Active	Uqbar c=Uubar		1.60653	0.17086	∑(d+s+U) =2.24843
Bottom-(Diquark b=ud)	Diquark Doublet Active	bqbar		5.24748	0.55808	∑(d+s+U+b) =7.4959
Magic-(Diquark m=us)	Diquark Doublet Suppressed			17.14013	1.82288	∑(d+s+U+b+m) =24.636
Dainty-(Diquark D=dd)	Diquark Triplet Suppressed			55.9855	5.95425	∑(d+s+U+b+m+D) =80.622 = M_W
Top-(Diquark t=ds)	Diquark Triplet Active	tqbar		182.869	19.44825	½{t} =91.4345 = M_Z
Super-(Diquark S=ss)	Diquark Triplet Suppressed			597.159	63.52527	½{S} =298.58 = HVE

$\sum(M_{W^+} + M_{W^-} + M_Z{}^o) = 2M_{HB}{}^o$ = (80.622 + 80.622 + 91.4345) GeV* = 252.679 GeV*

For Universal Electro-Weak Unification:

$2M_{BHo}/Y^{npresent} = 2M_{BHo}e/c^2Y^{npresent} = 2.6150\text{x}10^{-25}$ kg* for $2\pi R_{HBo} = h/M_{HBo}c$ and $R_{HBo} = 1.3525\text{x}10^{-18}$ m*

Restmass-Photon RMP is quantized in volumar $2\pi^2R_{RMP}^3.f_{ps}^2|_{constant} = e^*$ for R_{RMP}^o = 1.41188...x10^{-20} m*

HVE - $2M_{HB}^o$ = (298.58 - 252.679) GeV* = 45.901 GeV*

HVE - M_{HB}^o = (298.58 - 126.340) GeV* = 172.24 GeV* = Top-Quark Mass

Fermi Constant for Electro-Weak WNI Unification for universal alpha = $60\pi e^2/h$:

$F_o(\alpha) = \alpha\pi/\{\surd 2.M_W^2.(1-M_W^2/M_Z^2)\} = 1.5338574\text{x}10^{-3}.\alpha = 1.12067834\text{x}10^{-5} = 1/\{298.72 \text{ GeV*}\}^2$ for universal alpha = $60\pi e^2/h$

Fermi Constant for Electro-Weak WNI Unification for 'running' alpha = α':

$F_o(\alpha') = \alpha'\pi/\{\surd 2.M_W^2.(1-M_W^2/M_Z^2)\} = 1.5338574\text{x}10^{-3}.\alpha' = 1.166378\text{x}10^{-5} = 1/\{292.81 \text{ GeV*}\}^2$ for universal alpha = $60\pi e^2/h$

$F_o(\alpha)/F_o(\alpha') = \alpha/\alpha' = 0.9608186 = 1/1.0407792$ for $\alpha < \alpha'$

Fermi-HVE(α) = 292.81 GeV* = (298.72 - 5.8894 - 0.0206) GeV* = Fermi-HVE(α') - ∑(b+s+d) - ½$\{K_2-L_2\}$ = 292.81 GeV*
Fermi-HVE(α') = 298.72 GeV* = (298.58 + 0.14) GeV* = HEV + 6 ∑(b+s+d) + M_π for base
VPE = uubar = M_π^o = ∑(d) - δ{K⟷IR⟷OR}
$\{M_\pi = M_\pi^o + L_2 - ⅓m_e$ = 0.1399945 GeV* for M_π^o = 0.150578 - 0.01604 + (1+⅓)m_e = 0.150578 -

0.016014 + 0.000694 = 0.135258 GeV*}

<u>Weinberg Angle:</u>
$\cos\theta_W = M_W/M_Z = 80.622/91.4345 = 0.881746 = g/\surd(g^2+g'^2)$
$\sin\theta_W = \surd(1 - \cos^2\theta_W) = \surd 0.222524 = 0.471725 = g'/\surd(g^2+g'^2)$
$g'/g = \tan\theta_W = \sin\theta_W/\cos\theta_W = 0.53498967$ for $g'< g$
2{ g'α/gα'} = 2{0.53498967/1.0407792} = 1.02805604 =
28.1463°/27.553674° = 1.02150806 + δ(0.006548)
for θ_W = arccos{0.88175} = 28.1463° = 27.553674° + 0.5926°

<u>Kernel-VPE-Mixing:</u>
K(+) = K+ + K- = 60.21355

K(-) = K+ - K- = 31.98645

L(+) = L+ + L- = 6.40128

L(-) = L+ - L- = 3.4018

$K_2 + L_2 = 0.0510$ GeV* for Kernel-Inner Ring VPE_2 K→IR for Gluonic Kernel to Mesonic Inner Ring

$K_1 + L_1 = 0.0156$ GeV* for Kernel-Outer Ring VPE_1 (K→)IR→OR for Mesonic Inner Ring to Leptonic Outer Ring

$K_2 - L_2 = 0.0412$ GeV* for Kernel-Inner Ring VPE_2 K→IR for Gluonic Kernel Base VPE
$K_1 - L_1 = 0.0126$ GeV* for Kernel-Outer Ring VPE_1 (K→)IR→OR for (Gluonic Kernel)

$K_1 - L_1 = 0.0126$ GeV* for Kernel-Outer Ring VPE_1 (K→)IR→OR for (Gluonic Kernel)

<u>Modular ylem mass:</u>
$M|_{mod} = M_{chandra} = M_m = f_{ps}|_{mod}$ from monopolar displacement current:

$2\pi i/c = 2\pi e f_{ps}/c = 2\pi e/\lambda_{ps} = e/r_{ps} = e.r_{ss} = 2\pi e\lambda_{ss}$ for $2\pi i = [ec].r_{ss}$ as monopolar displacement current

$2\pi i = 2\pi\lambda_{ss}[ec] = 2\pi e[\lambda_{ss}c] = 2\pi e[f_{ps}\lambda_{ps}\lambda_{ss}] = 2\pi e f_{ps} = 2\pi ec/\lambda_{ps} \Leftrightarrow 2\pi ec/l_{planck}\sqrt{\alpha}$
$= 2\pi ec^3/e = 2\pi[ec]c^2/e = 2\pi M|_{mod}c^2/e$
$i = ef_{ps} = M|_{mod}c^2/e$ for $e^2 f_{ps}|_{mod} = M|_{mod}c^2$ for $[h/c^2]f_{ps}|_{mod} = [E/f][m/E]f_{ps}|_{mod} = M|_{mod} = M_m$

by Action Law Action $h = e^2$ Charge^2

From Electro-Weak Unification parameters:
{1eV = 1.0024656 eV*} with $T(n_{EW}=4.67\text{x}10^{-21}) = 3.40\text{x}10^{15}$ K*

$M_W^{\pm} = \Sigma_{Kernel\text{-}Mean} = m_{up\text{-}down}+m_{strange}+m_{charm}+m_{bottom}+m_{magic}+m_{dainty}$ =
0.151+0.492+1.607+5.247+17.140+55.986 = 80.622 GeV* or 80.424 GeV

M_Z^o = 91.435 GeV* or 91.210 GeV

$M_{H\chi}$ = 298.580 GeV* or 297.846 GeV

√2.Fermi Constant $G = \sqrt{2}.G_F = \sqrt{2}\{\pi\alpha/(\sqrt{2}.M_W^2[1-M_W^2/M_Z^2])\}$ = (1/Higgs-Vacuum-Expectation HVE)^2

$= 1.5848\text{x}10^{-5}$ GeV^{-2}* for HVE=251.19 GeV* or 250.58 GeV

As the Charmonium quark state is defined by the coupling of a double-up-diquark U=uu to an anti-up-quark as c=U.u(bar) and so as a quark molecule as the quark singlet state of 3 interacting quarks; whilst the diquark doublet of bottom-magic {b=[ud].ubar and m=[us].ubar} and the diquark triplet of dainty-top-super {D=[dd].U and t=[ds].U and S=[ss].U} form double quarks; the Kernel-Mean of the Charmonium energy level is added to the HVE and the Difference-VPE levels for the K-IR - IR-OR transitions are subtracted for the quark-antiquark coupling.

$M_W^- + M_W^+ + M_Z^o = 252.68$ GeV* ≈ HVE + m_{charm} - $(m_{K(+)}+m_{K(-)}+m_{L(+)}+m_{L(-)})$

= (251.19 + 1.60653 - [0.0922+0.009806]) = 252.69 GeV* or 252.07 GeV

$m_{charm} - (m_{K(+)}+m_{K(-)}+m_{L(+)}+m_{L(-)}) = 1.60653 - 0.102 = 1.5045 \approx M_W^- + M_W^+ + M_Z^o$ - HEV = 1.49 GeV*

HEV = $M_{H\chi} - m_D + m_{ud} + 2\text{x}m_{charm} + m_{u,d}$
= 298.580 - 55.986 + 5.24748 + 3.21306 + 0.15058 = 251.205 GeV*
≈ HEV in Kernel -Inner Ring mixing

HEV = HB+anti-HB = 2x$M_{higgsboson}$ for a Higgs Boson mean of: ½{252.68} = 126.34 GeV* or 126.03 GeV SI.
$M_{higgs\ boson}$ = 2x{55.986+5.247+1.607+0.492+0.151+0.046+0.014} GeV* = 127.09 GeV* = 126.77 GeV SI

for an upper bound including the base quarks u,d,s.

Using the 3 Diquark energy levels U,D and S yield $M_{higgsboson}$ = 2x{55.986+5.247+1.607} GeV* = 125.68 GeV* and 125.37 GeV SI. Subtracting the u,d means and the VPE mixing corrections gives:

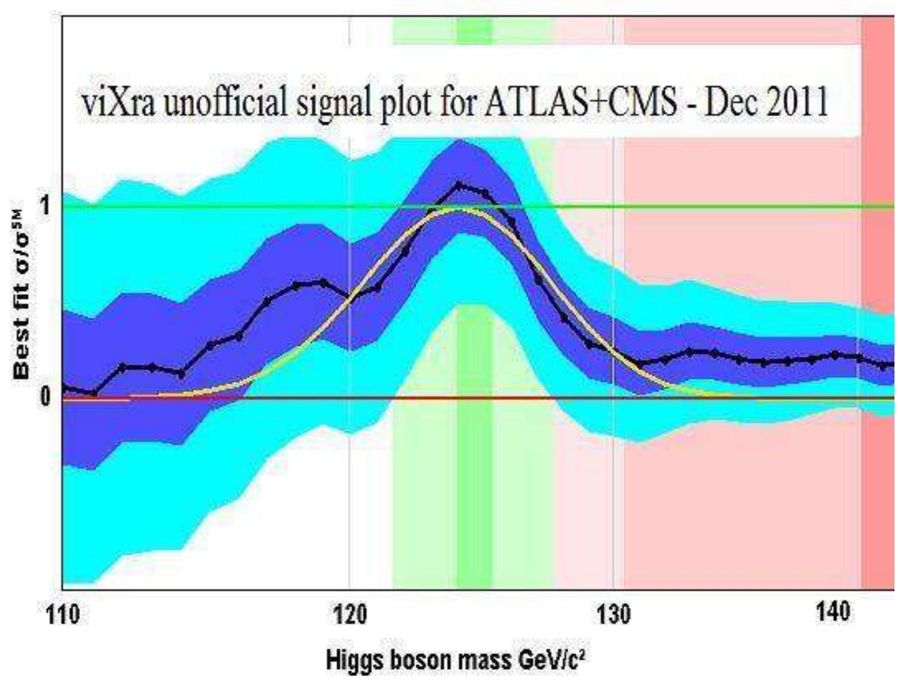
125.68 - (g_{L2}+g_{L1}+$g_{u,d}$+L2+L1+$L_{u,d}$) = 125.68 - 0.23321 = 125.447 GeV* or 125.138 GeV SI for a measured mass of the Higgs Boson.

Quantum Relativity describes the creation of the Higgs Boson from even more fundamental templates of the so called 'gauges'. The Higgs Boson is massless but consists of two classical electron rings and a massless doubled neutrino kernel, and then emerges in the magneto charge induction as mass carrying Goldstone gauge boson.

Higgs Boson resonances found by ATLAS and CMS as diquark conglomerates and Diphotons of CERN as Top-Super diquarks

The 'make-up' of the Higgs Boson can be highlighted in a discovery of a 160 GeV Higgs Boson energy and incorporating the lower energy between 92 GeV and to the upper dainty level at 130 GeV as part of the diquark triplet of the associated topomium energy level.

In particular, as the bottomium doublet minimum is at 5,247.48 MeV* and the topomium triplet minimum is at 55,985.5 MeV* in terms of their characteristic Kernel-Means, their doubled sum indicates a particle-decay excess at the recently publicized ~125 GeV energy level in 2x(5.24748+55.9855) GeV* = 122.466 GeV* (or 122.165 GeV SI).



These are the two means from ATLAS {116-130 GeV as 123 GeV} and CMS {115-127 GeV as 121 GeV} respectively.

http://press.web.cern.ch/press/PressReleases/Releases2011/PR25.11E.html

Then extending the minimum energy levels, like as in the case to calculate the charged weakon gauge field agent energy in the charm and the VPE perturbations as per the table given, specifies the 125 GeV energy level in the Perturbation Integral/Summation:

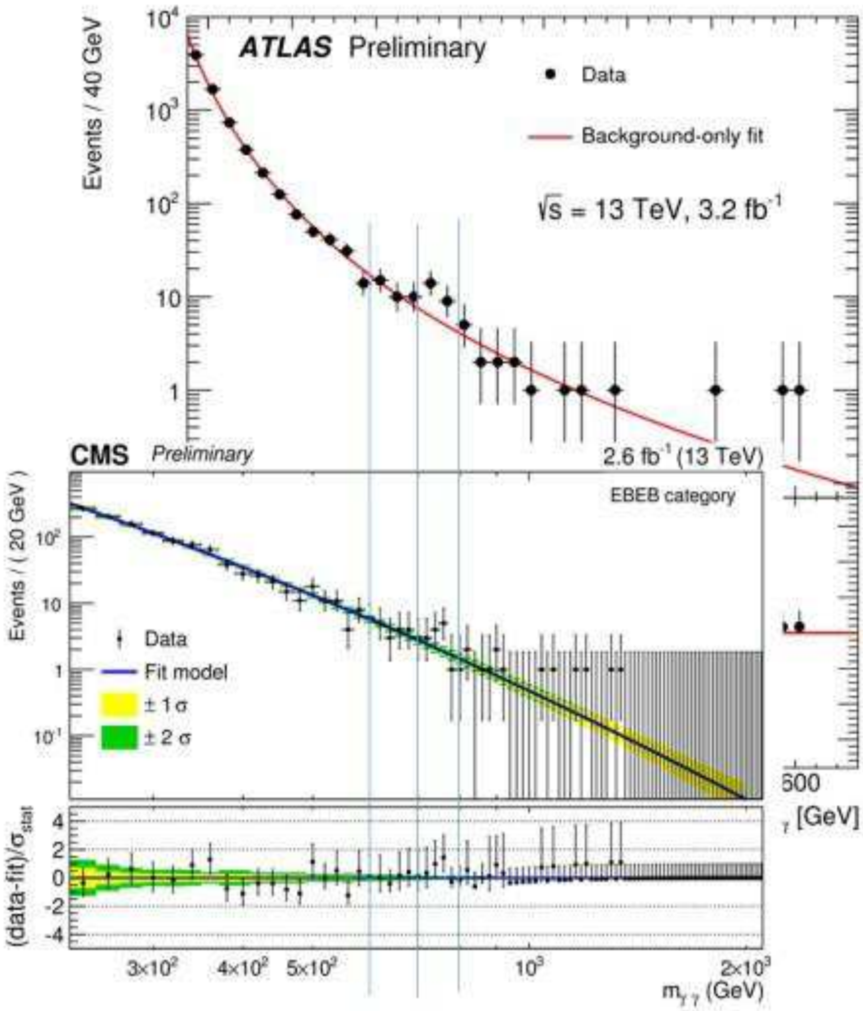
2x{55.986+5.247+1.607+0.492+0.151+0.046+0.014} GeV* = 127.09 GeV*, which become about 126.77 GeV SI as an upper bound for this 'Higgs Boson' at the Dainty quark resonance level from the UFoQR (Unified Field of Quantum Relativity).

Using the 3 Diquark energy levels U,D and S yield 2x{55.986+5.247+1.607} GeV*
= 125.68 GeV* and 125.37 GeV SI.

Some data/discovery about the Higgs Boson aka the 'God-Particle' states, that there seems to be a 'resonance-blip' at an energy of about 160 GeV and as just one of say 5 Higgs Bosons for a 'minimal supersymmetry'. One, the lowest form of the Higgs Boson is said to be about 110 GeV in the Standard Model. There is also a convergence of the HB to an energy level of so 120 GeV from some other models.

But according to QR, the Higgs Boson, is that is not a particular particle, but relates to all particles in its 'scalar nature' as a rest mass inducer.

It is natural, that an extended form of the Higgs Boson can show a blip at the 160 GeV mark and due to its nature as a 'polarity' neutralizer (a scalar particle has no charge and no spin but can be made up of two opposite electric charges and say two opposing chirality of spin orientations.) As can be calculated from the table entries below; a (suppressed Top-Super Diquark Resonance is predicted as a (ds)UUbar(ss)=(ds).u.ubar.u.ubar.(ss) quark complex or diquark molecule averaged at 182.869+597.159)GeV=780.03 GeV.



https://profmattstrassler.com/2015/12/16/is-this-the-beginning-of-the-end-of-the-standard-model/

In the diquark triplet {dd; ds; ss}={Dainty; Top; Super} a Super-Superbar resonance at 1.1943 TeV can also be inferred with an 'IR-OR triplet suppressed' Super-Dainty resonance at 653.145 GeV* and the Top-Dainty resonance at 238.855 GeV* by the Higgs Boson summation as indicated below.

Supersymmetric partners become unnecessary in the Standard Model, extended into the diquark hierarchies. Next, we interpret this scalar (or sterile) Double-Higgs (anti)neutrino as a majoron and lose the distinction between antineutrino and neutrino eigenstates.

We can only do this in the case of the Z^o decay pattern, which engage the boson spin of the Z^o as a superposition of two antineutrinos for the matter case and the superposition of two neutrinos in the antimatter case from first principles.
So the Z^o is a Majorana particle, which merges the templates of two antineutrinos say and spin induces the Higgs-Antineutrino. And where does this occur? It occurs at the Mesonic-Inner-Ring Boundary previously determined at the 2.776×10^{-18} meter marker. This marker so specifies the Z^o Boson energy level explicitly as an upper boundary relative to the displacement scale set for the kernel at the

wormhole radius $r_{ps}=\lambda_{ps}/2\pi$ and the classical electron radius as the limit for the nuclear interaction scale at 3 fermis in: $R_{compton}$Alpha.

So the particle masses of the standard model in QED and QCD become Compton-Masses, which are Higgs-mass-induced at the Mesonic-Inner-Ring (MIR) marker at $R_{MIR}=2.777...x10^{-18}$ meters. A reformulation of the rotational dynamics associated with the monopolar naturally superconductive current flow and the fractalization of the static Schwarzschild solution follows in a reinterpretation of the Biot-Savart Law.

The Biot-Savart Law: $B = \mu_o qv/4\pi r^2 = \mu_o i/4\pi r = \mu_o Nef/2r = \mu_o Ne\omega/4\pi r$ for angular velocity $\omega=v/r$ transforms into $B = \text{constant}(e/c^3)gx\omega$

in using $a_{centripetal} = v^2/r = r\omega^2$ for $g = G_oM/r^2 = (2G_oM/c^2)(c^2/2r^2) = (R_Sc^2/2R^2)$ for a Schwarzschild solution $R_S = 2G_oM/c^2$.

$B = \text{constant}(e\omega/rc)(v/c)^2 = \mu_o Ne\omega/4\pi r$ yields constant $= \mu_o Nc/4\pi = (120\pi N/4\pi) = 30N$ with $e = m_M/30c$ for $30N(e\omega/c^3)(G_oM/R^2) = 30N(m_M/30c)\omega(2G_oM/c^2)/(2cR^2) = NmM(\omega/2c^2R)(R_S/R) = \{M\}\omega/2c^2R$. Subsequently, $B = M\omega/2c^2R = Nm_M(R_S/R)\{\omega/2c^2R\}$ to give a manifesting mass M fine structured in $M = Nm_M(R_S/R)$ for $N = 2n$ in the superconductive 'Cooper-Pairings' for a charge count $q = Ne = 2ne$. Factor $2Rc^2$ is then proportional to magneto charge $e^*=2R_ec^2=1/E_{ps}$ with units $G_oM=M/k_e=4\pi\varepsilon_oM$

The string-parametric Biot-Savart law then relates the angular momentum of any inertial object of mass M with angular velocity ω in self inducing a magnetic flux intensity given by $B = M\omega/2Rc^2$ and where the magnetic flux and magnetic field strength relate inversely to a displacement R from the center of rotation and as a leading term approximation for applicable perturbation series.
The units for magnetic field B reform from the magneto charge units [C*] from Tesla $[T]^*=[Js/Cm^2]^*=[J/Am^2]^*=[kgm^2s^{-2}]^*/[Cm^2s^{-1}]^*=[kg/s]^*/[C^*]=[kg/s]^*/[m^3/s^2]^*=[M\omega/C^*]^*$

All inertial objects are massless as 'Strominger branes' or extremal boundary Black Hole equivalents and as such obey the static and basic Schwarzschild metric as gravita
template for inertia.

This also crystallizes the Sarkar Black Hole boundary as the 100 Mpc limit ($R_{Sarkar} = (M_o/M_{critical}.R_{Hubble}) = 0.028.R_{Hubble}$~237 Million lightyears) for the cosmological principle, describing large scale homogeneity and isotropy, in the supercluster scale as the direct 'descendants' of Daughter Black Holes from the Universal Mother Black Hole describing the Hubble Horizon as the de Sitter envelope for the Friedmann cosmology for the oscillatory universe bounded in the Hubble nodes as a standing waveform.

But any mass M has a Schwarzschild radius R_S for $N = (M/m_M)\{R/R_S\}$
$= (M/m_M)\{Rc^2/2G_oM\} = \{Rc^2/2Gm_M\} = \{R/R_M\}$ for a monopolar Schwarzschild radius
$R_M = 2G_om_M/c^2 = 2G_o(30ec)/c^2 = 60ec/30c^3 = 2e/c^2 = 2L_P\sqrt{Alpha} = 2OL_P$.
Any mass M is quantized in the Monopole mass $m_M = m_P\sqrt{Alpha}$ in its Schwarzschild metric and where the characterizing monopolar Schwarzschild radius represents the minimum metric displacement scale as the Oscillation of the Planck-Length in the form $2L_P\sqrt{Alpha}$~$L_P/5.85$.

This relates directly to the manifestation of the magnetopole in the lower dimensions, say in Minkowskian spacetime in the coupling of inertia to Coulombic charges, that is the electro pole and resulting in the creation of the mass-associated electromagnetic fields bounded in the c-invariance.

From the Planck-Length Oscillation or 'L_P-bounce': $OL_P = L_P\sqrt{Alpha} = e/c^2$ in the higher (collapsed or enfolded) string dimensions, the electro pole $e = OL_P.c^2$ maps the magnetopole $e^* = 2R_e.c^2$ as 'inverse source energy' $E_{Weyl} = hf_{Weyl}$ and as function of the classical electron radius
$R_e = k_e e^2/m_e c^2 = R_{Compton}.Alpha = R_{Bohr1}.Alpha^2 = 10^{10}\{2\pi r_{ps}/360\} = \{e^*/2e\}.OL_P$.

The resulting reflection-mirror space of the M-Membrane space (in 11D) so manifests the 'higher D' magneto charge 'e*' as inertial in the monopolar current [ec], that is the electropolar Coulomb charge 'e'. This M-space becomes then mathematically formulated in the gauge symmetry of the algebraic Lie group E_8 and which generates the inertial parameters of the classical Big Bang in the Weylian limits and as the final Planck-String transformation.

This descriptor of a string-based cosmology so relates the inherent pentagonal supersymmetry in the cosmogenesis to the definition of the Euler identity in its fine structure $X+Y = XY = i^2 = -1$, and a resulting quadratic with roots the Golden Mean and the Golden Ratio of the ancient omniscience of harmonics, inclusive of the five Platonic solids mapping the five superstring classes.

The quantization of mass m so indicates the coupling of the Planck Law in the frequency parameter to the Einstein law in the mass parameter.

The postulated basis of M-Theory utilizes the coupling of two energy-momentum eigenstates in the form of the modular duality between so termed 'vibratory' (high energy and short wavelengths) and 'winding' (low energy and long wavelengths) self-states. The 'vibratory' self-state is denoted in:
$E_{ps} = E_{primary\ sourcesink} = hf_{ps} = m_{ps}c^2$ and the 'winding' and coupled self-state is denoted by:
$E_{ss} = E_{secondary\ sinksource} = hf_{ss} = m_{ss}c^2$
The F-Space Unitary symmetry condition becomes: $f_{ps.}f_{ss} = r_{ps.}r_{ss} = (\lambda_{ps}/2\pi)(2\pi\lambda_{ss}) = 1$

The coupling constants between the two eigenstates are so:
$E_{ps}E_{ss} = h^2$ and $E_{ps}/E_{ss} = f_{ps}^2 = 1/f_{ss}^2$
The Supermembrane $E_{ps}E_{ss}$ then denotes the coupled superstrings in their 'vibratory' high energy and 'winded' low energy self-states.

The coupling constant for the vibratory high energy describes a maximized frequency differential over time in $df/dt|_{max} = f_{ps}^2$ and the coupling constant for the winded low energy describes its minimized reciprocal in $df/dt|_{min} = f_{ss}^2$.

F-Theory also crystallizes the following string formulations from the $E_{ps}E_{ss}$ super brane parameters.
$1/E_{ps} = e^* = 2R_ec^2 = \sqrt{\{4\alpha hce^2/2\pi G_o m_e^2\}} = 2e\sqrt{\alpha\{m_P/m_e\}} = 2k_ee^2/m_e = \alpha hc/\pi m_e$

Here e* is defined as the inverse of the sourcesink vibratory superstring energy quantum $E_{ps} = E^*$ and becomes a *New Physical Measurement Unit is the Star Coulomb (C*)* and as the physical measurement unit for 'Physical Consciousness'. R_e is the 'classical electron radius' coupling the 'point electron' of Quantum- Electro-Dynamics (QED) to Quantum Field Theory (QFT) and given in the electric potential energy of Coulomb's Law in: $m_ec^2 = k_ee^2/R_e$; and for the electronic rest mass m_e.

Alpha α is the electromagnetic fine structure coupling constant $\alpha = 2\pi k_e e^2/hc$ for the electric charge quantum e, Planck's constant h and lightspeed constant c. G_o is the Newtonian gravitational constant as applicable in the Planck-Mass $m_P = \sqrt{(hc/2\pi G_o)}$. As the Star Coulomb unit describes the inverse sourcesink string energy as an elementary energy transformation from the string parametrization into the realm of classical QFT and QED, this transformation allows the reassignment of the Star Coulomb (C*) as the measurement of physical space itself.

The Mass Distribution for a Quantum Relativistic Classical Electron

We set Constant A in $Am_{ec} = \mu_o e^2/8\pi cR_e$ for $Aß^2 = 1/\sqrt{[1 - ß^2]} - 1$
from: $c^2(m - m_{ec}) = \mu_o e^2 v^2/8\pi R_e = m_{ec}c^2(1/\sqrt{[1-ß^2]} - 1) = m_{ec}v^2 A$ with a total QR monopolar mass $m = m_{ec}/\sqrt{(1-[v/c]^2)}$

This leads to a quadratic in $ß^2$: $1 = (1 + Aß^2)^2(1-ß^2) = 1 + ß^2(2A+A^2ß^2-2Aß^2-A^2ß^4 - 1)$ and so: $\{A^2\}ß^4+\{2A-A^2\}ß^2+\{1-2A\} = 0$ with solution in roots:

$$\mathbf{ß^2 = ([A-2] \pm \sqrt{[A^2+4A]})/2A = \{(½-1/A)\pm\sqrt{(¼+1/A)}\}[} \text{ ....} \mathbf{[EQ.7]}$$
$$\mathbf{\text{and } A = -\{1 \pm 1/\sqrt{(1-ß^2)}\}/ß^2 \text{ solving (in 4 roots) the quadratic } (2Aß^2+2-A)^2 = A^2 + 4A}$$

This defines a distribution of $ß^2 = (v/c)^2$ and $ß = v/c$ velocity ratios in
$m_{ec}.Aß^2 = \mu_o e^2[v/c]^2/8\pi R_e$

The electromagnetic mass m_{ec} in the relation $m_{ec}A = ½m_e$ is then the monopolar quantum relativistic Restmass and allows correlation by the Compton constant and between its internal magnetopolar self-interaction with its external magnetic relativistic and kinetic effective electron ground state mass m_e respectively.
In particular $m_e = 2Am_{ec}$ and is m_{ec} for A=½ as the new minimization condition. In string parameters and with m_e in *units, $\mathbf{m_eA=30e^2c/e^*=½m_e=4.645263574\times10^{-31}}$ kg*
In terms of the superstring quantum physical theory, the expression
$[ec]_{unified} = 4.81936903\times10^{-11}$ kg* or $[ec^3]_u = 2.7\times10^{16}$ GeV* as the Grand-Unification (GUT) energy scale of the magnetic monopole, which represents the first superstring class transformation from the Planck-string class I of closure to the self-dual opening of class IIB, as the magnetic monopole of the inflaton epoch.

$$\mathbf{E^*=E_{weyl}=E_{ps}=hf_{ps}=hc/\lambda_{ps}=m_{ps}c^2=(m_e/2e).\sqrt{[2\pi G_o/\alpha hc]}=\{m_e/m_P\}/\{2e\sqrt{\alpha}\}=1/2R_ec^2=1/e^*}$$

Monopolar charge quantum as Electropolar charge quantum

$$\mathbf{e^*/c^2 = 2R_e \Leftarrow \text{super-membrane displacement transformation} \Rightarrow \sqrt{\alpha}.l_{planck} = e/c^2}$$

This implies, that for A=1, $m_{ec} = ½m_e$, where $\mathbf{m_e = 9.290527155\times10^{-31}}$ **kg*** from particular algorithmic associations of the QR cosmogony and is related to the fine structure of the magnetic permeability constant $\mu_o = 120\pi/c = 1/\varepsilon_o c^2$, defining the classical electronic radius.
As ß≥0 for all velocities v, bounded as group speed in c for which $ß^2$=ß=1, (and not de Broglie phase speed: $\mathbf{v_{dB} = (h/mv_{group})(mc^2/h) = c^2/v_{group} > c}$); a natural limit for the ß distribution is found at A = ½ and A

$= \infty$.

The electron's Restmass m_{ec} so is binomially distributed for the ß quadratic. Its minimum value is half its effective mass m_e and as given in:

$\mu_o e^2/8\pi m_e R_e = ½m_e$ for a distributed rest-mass $m_{ec}/R_e = m_e/r_{ec}$ in A and

$m_{electric} = k_e q^2/2R_e c^2 = \mu_o e^2/8\pi R_e = U_e/c^2 = ½m_e$ for A=½ and its maximum for A=∞ is the unity v=c for ß=1

The classical Restmass m_o of the electron and as a function of its velocity from v=0 to v=c so is itself distributed in its magnetic mass potential about its effective Restmass $m_e=\mu_o e^2/4\pi R_e c^2$ and as a function of the classical electron radius R_e.

Its minimum condition is defined by the electric potential energy in $m_o=½m_e$ for a value of A=½ with effective Restmass m_e being the Restmass for a stationary electron v=0 without magnetic inertia component.

For v=c, the mass of the electron incorporates a purely relativistic and quantum relative self-interacting magnetic monopolar value for which $m_o=0$ and the effective m_e assumes the minimum rest energy for the electron at A=1 and generalised as $m_e=2Am_o$.

The classical Restmass $m_o=hf/c^2$ so decreases from its maximum value as $m_o=m_e$ to $m_o=0$ as a function of the velocity distribution and in the extension of the classical force to incorporate the differential $d(m_o) = hd(f)/c^2$ by

$F_{Newton} = F_a + F_\alpha$ = F-acceleration + F-alpha as the sum of the classical Newtonian linear momentum change and the quantum mechanical angular acceleration momentum change in the self-interaction for the electron.

The charge radius for the proton and neutrinos in QR

[BeginQuote]A scientific tug-of-war is underway over the size of the proton. Scientists cannot agree on how big the subatomic particle is, but a new measurement has just issued a forceful yank in favor of a smaller proton.

By studying how electrons scatter off of protons, scientists with the PRad experiment at Jefferson Laboratory in Newport News, Va., sized up the proton's radius at a measly 0.83 femtometers, or millionths of a billionth of a meter. That is about 5 percent smaller than the currently accepted radius, about 0.88 femtometers.

https://www.sciencenews.org/article...-slightly-smaller-proton?tgt=more[EndofQuote]

It is the unitary interval between A=½ and A=1 which so determines the quantum nature for the quantum mechanics in the relativistic ß distribution.

In particular for A=½ and for $ß^2 = x = 0$, the Compton constant defines the required electron Restmass of electro stasis as $½m_e c^2 = e^2c^2/8\pi\varepsilon_o R_e\}$ for an effective electron size of R_e, whilst for A=1 $m_e c^2 = e^2c^2/4\pi\varepsilon_o R_e$ for a doubling of this radius to $2R_e$ for $ß^2 = x = X$.

Using the Rydberg Constant as a function of Alpha (and including the Alpha variation) as $R_{y\infty}$ = $Alpha^3/4\pi R_e = Alpha^2.m_e c/2h = m_e e^4/8\varepsilon_o^2 h^3 c = 11.1299104\times10^6$ [1/m]* or 11.1485125×10^6 [1/m] defines variation in the measured CODATA Rydberg constant of a factor 10,973,731.6/11,148,512.5 = 0.98432... Subsequently, using the Rydberg energy levels for the electron-muon quantum energy transitions, will result in a discrepancy for the proton's charge radius in 0.88x0.98 ~ 0.866 femto meters as a mean value for the charge radius of the proton.

$$\frac{1}{\lambda} = R_\infty \left(\frac{1}{n_1^2} - \frac{1}{n_2^2}\right) = \frac{m_e e^4}{8\varepsilon_0^2 h^3 c}\left(\frac{1}{n_1^2} - \frac{1}{n_2^2}\right)$$

$$R_\infty = \frac{m_e e^4}{8\varepsilon_0^2 h^3 c} = 10\,973\,731.568\,508\,(65)\,\mathrm{m}^{-1},$$

Energy for quantization n: $E = -Ze^2/8\pi\varepsilon_o R = KE+PE = ½mv^2 - Ze^2/4\pi\varepsilon_o R$ for angular momentum $nh/2\pi = mvR$ with $mv^2/R = Ze^2/4\pi\varepsilon_o R^2$
for $v = Ze^2/2\varepsilon_o nh$ and $R = n^2h^2\varepsilon_o/Ze^2\pi m = 5.217\text{x}10^{-11}$ m* for the minimum energy n=1 for $m=m_{effective}=m_e=9.29061\text{x}10^{-31}$ kg* and atomic number Z=1 for hydrogen.

$E_n = hf_n = hc/\lambda_n = -Z^2e^4(\pi m_e)/(8\pi\varepsilon_o{}^2h^2n^2) = -Z^2e^4(\pi e^2/4\pi\varepsilon_o R_e c^2)/(8\pi\varepsilon_o{}^2h^2n^2)$
$= -Z^2e^6/(32\pi R_e\varepsilon_o{}^3h^2n^2c^2)$ for $1/\lambda_n = -Z^2e^6/(32\pi R_e\varepsilon_o{}^3h^3n^2c^3) = -Z^2.\text{Alpha}^3/4\pi n^2R_e$ for eigen state n and Rydberg constant $R_{y\infty} = \text{Alpha}^3/4\pi R_e = \text{Alpha}^2.m_ec/2h = m_ee^4/8\varepsilon_o{}^2h^3c$

In the Feynman lecture the discrepancy for the electron mass in the electromagnetic mass multiplier of 4/3 is discussed.
http://www.feynmanlectures.caltech.edu/II_28.html

Its solution resides in the unitary interval for A, as the arithmetic mean of: ½{½+1} = 3/4 as the present internal magnetic charge distribution of the electron, namely as a trisection of the colour charge in 3x⅓=1 negative fraction charges in the quantum geometry of the electron indicated below in this paper.

The classical size for the proton so is likewise approximated at the mean value of its own colour charge distribution, now consisting of a trisected quark-gluon-anti-neutrino kernel of 3x⅔=2 positive fraction charges, which are 'hugged' by a trisected 'Inner Mesonic Ring' (d-quark-KIR) as a contracted 'Outer Leptonic Ring' (s-quark-KOR) for the manifestation of the electron-muon-tauon lepton family of the standard model.

For the electrostatic electron the ß distribution at A=½, the Compton constant gives
$m_{ec}r_{ec} = m_eR_e$ for $ß^2 = 0$ and at A=1, the Compton constant gives $m_{ec}r_{ec} = ½m_e.2R_e$ for
$ß^2 = X$ and as the mean for a unitary interval is ½, the electron radius transforms into the protonic radius containing monopolar charge as internal charge distribution in $R_p = ½XR_e$ and where the factor X represents the symmetry equilibrium for a ß=(v/c} velocity ratio distribution for the effective electron Restmass m_e proportional to the spacial extent of the electron.

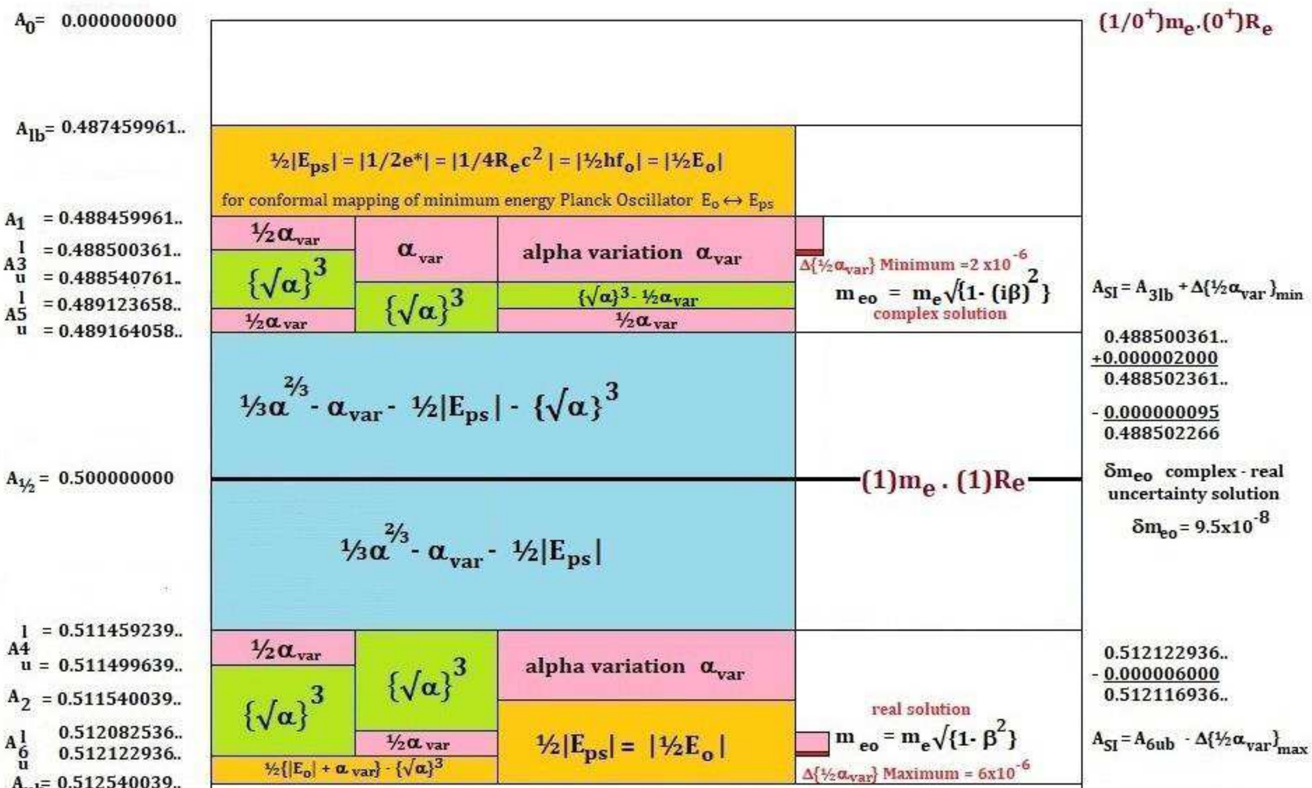
For the proton then, its 'charge distribution' radius becomes averaged as
$R_{proton} = 0.85838052\text{x}10^{-15}$ m* as a reduced classical electron radius and for a speed for the self-interactive or quantum relativistic electron of $2.96026005\text{x}10^{-13}$ c. This quantum relativistic speed reaches its $v/c=1^-$ limit at the instanton boundary and defines a minimum quantum relativistic speed for the electron at $v_e = 1.50506548\text{x}10^{-18}$ c for its electrostatic potential, where $U_e=\int\{q^2/8\pi\varepsilon_o r^2\}dr = q^2/8\pi\varepsilon_o R_e = ½m_ec^2$ for a classical velocity of v_e=0 in a non-interacting magnetic field B=0.
$2U_e=m_ec^2$ so implies a halving of the classical electron radius to obtain the electron mass $m_e=2U_e/c^2$ and

infers an oscillating nature for the electron size to allow a synergy between classical physics and that of quantum mechanics.

Derivation of the electron restmass from a super-membraned Planck Oscillator

The bare electron mass m_{eo} should be found in two intervals defined in the alpha variation applied to both a complex halving part $A_{3\,\text{upper bound}} - A_{3\,\text{lower bound}}$ for a minimised δ_{min} added to $\frac{1}{2}\alpha_{var}$ and a real halving part $A_{6\,\text{lower bound}} - A_{6\,\text{upper bound}}$ for a maximised δ_{max} subtracted from $\frac{1}{2}\alpha$var.
To calibrate the(*)-measurement system to the SI-mensuration units within the context of the alpha variation, the electromagnetic charge-mass ratio for the electron is used with:

$\{e/m_{eo} = 1.606456344\text{x}10^{-19}\text{C*}/9.143202823\text{x}10^{-31}\ \text{kg*} = 1.756995196\text{x}10^{11}\ \text{C*/kg*}\}$ and
$\{e/m_{eo} = 1.602111894\text{x}10^{-19}\text{C}/9.10901554\text{x}10^{-31}\ \text{kg} = 1.758820024\text{x}10^{11}\ \text{C/kg}\}$ minimised in the alpha variation maximum.



$A_{3/5} = 0.600000000..$ Volume Charge for the classical electron for $U_e = \frac{3}{5}\mu_0 e^2/4\pi R_e \neq \mu_0 e^2/8\pi R_e = \frac{1}{2}m_e c^2 = U_e$ **$(5/6)m_e.(6/5)R_e$**

$A_{3/4} = 0.750000000$ Surface Charge for the classical electron for $U_e = \mu_0 e^2/6\pi R_e \neq \mu_0 e^2/8\pi R_e = \frac{1}{2}m_e c^2 = U_e$ **$(2/3)m_e.(3/2)R_e$**

As $\beta^2 = (1 - \{m_e/m_{ec}\}^2)$ and $(1 - \{m_{eo}/m_e\}^2)$ as a distribution of mass ratios, it can be linked to the Compton constant in $m_e/m_{ec} = r_{ec}/R_e$ in an inverse proportionality and so the unitary interval and the electron's mass and spacial extent distribution.

A conformal mapping of the minimum Planck energy as a Planck oscillator $E_o = \frac{1}{2}hf_o$ at the Planck energy of superstring class I onto the heterotic superstring HE(8x8) in the qbb energy quantum $E_{ps} = E_{weyl}$ associates and couples the unitary interval to the displacement bounce of the inflaton. We denote the E_{ps} energy quantum as $|E_{ps}|$ in its unified modular self state where $E_{ps}.e^* = 1 = E^*e^*$

The alpha variation $\alpha_{var} = 1 - (1.6021119\text{x}10^{-19}/1.60217662\text{x}10^{-19})^2 = 1 - 0.9999192 = 8.08\text{x}10^{-5}$ by [Eq.10]

$A_{ub} - A_{4l} = A_{3u} - A_{lb} = 0.0010808... = 0.0010 + 0.00008078 = \frac{1}{2}|E_{ps}| + [\sim]\alpha_{var}$.

$A_{1^*} = 1.000000000$ **$(1/2)m_e.(2)R_e$**

Minimum Planck Oscillator $\frac{1}{2}\lvert E_o\rvert \Leftrightarrow \lvert E_{ps}\rvert^* = 1/\lvert e^*\rvert$	$\frac{1}{2}\lvert E_{ps}\rvert$	$\frac{3}{4}\lvert E_{ps}\rvert$	$1\lvert E_{ps}\rvert$	$5/4\lvert E_{ps}\rvert$	$3/2\lvert E_{ps}\rvert$
Value in energy (Joules; Joules*)	1/1000	1/666⅔	1/500	1/400	1/333⅓
Value as modulated to A-interval as M-Sigma	$1\text{x}10^{-3}$	$1.5\text{x}10^{-3}$	$2\text{x}10^{-3}$	$2.5\text{x}10^{-3}$	$3\text{x}10^{-3}$
$\lvert E_{ps}\rvert^*/\lvert e^*\rvert$ to reunitize-renormalize $E^*e^*=1$	$2\text{x}10^{-6}$	$3\text{x}10^{-6}$	$4\text{x}10^{-6}$	$5\text{x}10^{-6}$	$6\text{x}10^{-6}$
⅔-value in partition interval $\frac{2}{3}m_e.\frac{1}{3}R_e$ for mean A=¾	1/2	3/4	1	5/4	3/2
Fraction of Renormalization effect	1/3	1/2	2/3	5/6	1
Value of $\Delta\{\frac{1}{2}\alpha_{var}\}$ in $A_{6lb} - A_{6ub}$ (real) and in $A_{3ub} - A_{3lb}$ (complex)	$2\text{x}10^{-6}$ complex min	$3\text{x}10^{-6}$	$4\text{x}10^{-6}$	$5\text{x}10^{-6}$	$6\text{x}10^{-6}$ real max
The $\frac{1}{2}a_{var}$ sub-interval so is adjusted by $6\text{x}10^{-6}$ from $A_{6ub} - \Delta\{\frac{1}{2}\alpha_{var}\} = A_{SI}$ for β^2_{SI} for m_{eo}SI for the real solution					

Electromagnetic Mass Distribution for the Quantum Relativistic Electrodynamic Electron

$A=\mu_o e^2/8\pi m_{ec}R_e$ $=ke^2/2m_{ec}R_ec^2$ $=ke^2/m_{ec}e^*$ $=ke^2\vert E_{ps}^*\vert/m_{ec}$	$ß^2 = 1-\{m_{eo}/m_e\}^2$ $= 1-\{m_{eo}R_e/m_{ec}r_{ec}\}^2$ $ß^2 \Rightarrow (iß)^2$ for $A < ½$	x root	y root	self-relative-QR-m_{eo} m_{eo} kg*/ m_{eo} kg $m_{eo} = m_e\sqrt{1-ß^2}$ $= m_e/\gamma$ $ß^2 \Rightarrow (iß)^2$ for $A < ½$	v/c	$(v_{ps}/c)^2 =$ $1/\{1+r_{ec}^4/4\pi^2\alpha^2r_{ps}^4\}$ for magnetopolar.velocity.in c (m/s)* $r_{ec} = R_e/\gamma = \sqrt{1-ß^2}\ R_e$ $r_{ec}/R_e = m_e/m_{ec}$ in m*	self-relative -QR-r_e
0	**0 ± 0**	**$1/0^+$**	**$-1/0^+$**	**$[1/0^+]m_e$**	**$i/0^+$**	**algorithmic metaphysicality inflaton spacetime as complex** **$v_{ps} = ic = ci$**	**$[\propto]\ R_e$**
$1-½\sqrt{2} =$ 0.292893218		**$-1 = i^2$ x-root is complex**	**$1+½\sqrt{2} =$ -4.82842714 y-root is complex**	**0 0**	**i**	**1 c 1 0 0 R_e**	**$(2/0^+)R_e$**
$\{1-½\sqrt{2}\}+O(10^{-17})$ $= 0.292893218^+$ $-\{1\pm1/\sqrt{[1-ß^2]}\}/ß^2$ $\sim -1\{1\pm1+½ß^2\}/ß^2$	$ß_{compleximage}^2 = -2.914213561.......$ $\pm$ 1.91421356200...	-0.999999999.... $\{i.m_e/\alpha m_{ps}\}^2 =$ $-1+3.282806345\text{x}10^{-17}$	-4.82842714^+	0^+ 0^+	i^-	$v_{ps}= 2\pi\alpha c/\sqrt{\{1+4\pi^2\alpha^2\}}$ =0.045798805 ic 13,739,641.79 [m/s]* $r_{ec}=r_{ps}=180R_e/(\pi10^{10})$ $1.591549431\text{x}10^{-23}$ $5.729577953\text{x}10^{-9}\ R_e$	349,065,850.6 R_e
$A_{lb} =$ 0.487459961	**$ß_{lb}^2 =$** -1.55145054 $\pm$ 1.517053242	-0.034397297	-3.068503782	$9.129344446\text{x}10^{-31}$ $9.095208981\text{x}10^{-31}$	0.185i	$1.558679858\text{x}10^{-18}$ ic $4.676039573\text{x}10^{-10}$ $2.729585632\text{x}10^{-15}$ 0.982650855 R_e	1.018 R_e
$A_1 =$ 0.488459961.	**$ß_1^2 =$** -1.547250706 $\pm$ 1.515668402	-0.031582303	-3.062919108	$9.142642017\text{x}10^{-31}$ $9.108456831\text{x}10^{-31}$	0.177i	$1.554149091\text{x}10^{-18}$ ic $4.662447273\text{x}10^{-10}$ $2.733561478\text{x}10^{-15}$ 0.984082159 R_e	1.016 R_e
$A_{31} =$ 0.488500361	**$ß_{31}^2 =$** -1.547081394 $\pm$ 1.515612547	-0.031468847	-3.062693941	$9.143177565\text{x}10^{-31}$ $9.108990376\text{x}10^{-31}$	0.177i	$1.55396695\text{x}10^{-18}$ ic $4.661900851\text{x}10^{-10}$ $2.733721674\text{x}10^{-15}$ 0.984139803 R_e	1.016 R_e

A_{Sl} = complex 0.488502266 [e/m]= 1.758820024 $x10^{-11}$ C/kg with α_{var} A-root complex=real	**$ß_{Sl}^2$ = -1.54707341 ± 1.515609914**	**-0.031463495**	**-3.062683324**	**$9.14320282x10^{-31}$ $9.109015537x10^{-31}$ δm_{eo} =- $9.5x10^{-8}$ uncertainty solution complex - real**	**0.177i**	**$1.553958288x10^{-18}$ ic $4.661874865x10^{-10}$ $2.733729293x10^{-15}$ 0.984142545 R_e**	**1.016 R_e**
A_{Sl} = complex 0.488502361 [e/m]= 1.758820024 $x10^{-11}$ C/kg with α_{var} min	**$ß_{Sl}^2$ = -1.547073013 ± 1.515609783**	**-0.03146323**	**-3.062682796**	**$9.143204074x10^{-31}$ $9.109016786x10^{-31}$**	**0.177i**	**$1.553957936x10^{-18}$ ic $4.661873808x10^{-10}$ $2.733729603x10^{-15}$ 0.984142657 R_e**	**1.016 R_e**
A_{3u} = 0.488540761	**$ß_{3u}^2$** = -1.54691211 ± 1.5155567	-0.03135541	-3.06246881	$9.143712983x10^{-31}$ $9.109523792x10^{-31}$	0.177i	$1.553784965x10^{-18}$ ic $4.661354894x10^{-10}$ $2.733881762x10^{-15}$ 0.984197434 R_e	1.016 R_e
A_{5l} = 0.489123658	**$ß^{5l2}$** = -1.54447277 ± 1.514751719	-0.029721051	-3.059224489	$9.151423661x10^{-31}$ $9.117205639x10^{-31}$	0.172i	$1.551167736x10^{-18}$ ic $4.653503207x10^{-10}$ $2.73618718x10^{-15}$ 0.985027384 R_e	1.015 R_e
A_{5u} = 0.489164058	**$ß_{5u}^2$** = -1.544303917 ± 1.514695982	-0.029607935	-3.058999899	$9.151957085x10^{-31}$ $9.117737069x10^{-31}$	0.172i	$1.550986921x10^{-18}$ ic $4.652960762x10^{-10}$ $2.736346668x10^{-15}$ 0.9850848 R_e	1.015 R_e
½	**-3/2 ± 3/2**	**0.0**	**-3**	**m_{eo} = m_e = m_{ec}** $9.290527148x10^{-31}$ $9.255789006x10^{-31}$	**0**	**$1.5050654x10^{-18}$ c $2.7777777...x10^{-15}$ = 1.00 R_e**	**R_e**
0.50078795	$ß_{realimage}^2$ = -1.496853158 ± 1.498950686	0.002097530539 0.00209752801	-2.995803844	$9.280778463x10^{-31}$ $9.246076772x10^{-31}$	0.0458	$1.508228953x10^{-18}$ c $4.524686858x10^{-10}$ $2.774863014x10^{-15}$ 0.998950685 R_e	1.001576 R_e
A_{4l} = 0.511459239	**$ß_{4l}^2$** = -1.455190021 ± 1.484988222	0.029798201	-2.940178243	$9.151059822x10^{-31}$ $9.1163843161x10^{-31}$	0.173	$1.551286282x10^{-18}$ c $2.73608263x10^{-15}$ = 0.98498975 R_e	1.015 R_e
A_{4u} = 0.511499639	**$ß_{4u}^2$** = -1.455035593 ± 1.484936225	0.029900632	-2.939971818	$9.15057674x10^{-31}$ $9.116361885x10^{-31}$	0.173	$1.55145488x10^{-18}$ c $2.73593396x10^{-15}$ = 0.98493623 R_e	1.015 R_e
A_2 = 0.511540039	**$ß_2^2$** = -1.45488119 ± 1.484884234	0.030003044	-2.939765424	$9.150093721x10^{-31}$ $9.115880672x10^{-31}$	0.1732.86	$1.55161873x10^{-18}$ c $2.7357895x10^{-15}$ = 0.98488423 R_e	1.015 R_e
A_{6l} = 0.512082536	**$ß_{6l}^2$** = -1.452810201 ± 1.484186714	0.031376513	-2.936996915	$9.143613382x10^{-31}$ $9.109424564x10^{-31}$	0.177	$1.553818818x10^{-18}$ c $2.73385198x10^{-15}$ = 0.98418671 R_e	1.016 R_e

A_{SI} = real 0.512116936 [e/m]= 1.758820024 x10^{-11} C/kg with α_{var} max	**$ß_{SI}^2$ = -1.452679026 ± 1.484142522**	**0.031463496**	**-2.936821548**	**[1.02/1.02]m_e√(1-x) 9.14320282x10^{-31} 9.109015537x10^{-31}**	**0.177**	**1.553958371x10^{-18} c 2.73372922x10^{-15} = 0.98414252 R_e**	**1.016 R_e**
A_{6u} = 0.512122936	**$ß_{6u}^2$ =** -1.452656072 ± 1.484134815	0.031478742	-2.936790887	9.143130852x10^{-31} 9.108943838x10^{-31}	0.177	1.553982826x10^{-18} c 2.73370771x10^{-15} = 0.98413478 R_e	1.016 R_e
A_{ub} = 0.512540039	**$ß_{ub}^2$ =** -1.451067085 ± 1.483599368	0.032532283	-2.934666453	9.138156632x10^{-31} 9.103988218x10^{-31}	0.180	1.555675057x10^{-18} c 2.73222047x10^{-15} = 0.98359937 R_e	1.017 R_e
4(⅔√3-1) 0.618802153	-1.116025404 ±1.366025404 -¼(1+2√3)±½√(4+2√3)	¼	-2.4820508 -(¾+√3)	[1.24/1.24]m_e√(1-x) 8.045832525x10^{-31} 8.015748411x10^{-31}	0.500	2.006753867x10^{-18} c v_{ps} = 6.020261601x10^{-9} 2.405626121x10^{-15} = 0.866025403 R_e	1.238 R_e
¾ Mean: ½{½+1} ∑surface charge	-⅝ ± √(19/12)	0.424972405	-2.09164	**[3/2]⅔m_e√(1-x)** 7.045060062x10^{-31} 7.018717929x10^{-31}	0.652	2.617379438x10^{-18} c v_{ps} = 7.852138314x10^{-9} 2.10640483x10^{-15} = 0.75830574 R_e	3R_e/2
⅚ ∑Volume charge	-7/10 ± √(29/20)	0.504159457	-1.904159458	**[5/3]⅗m_e√(1-x)** 6.542012566x10^{-31} 6.517551374x10^{-31}	**0.710**	3.035381866x10^{-18} c v_{ps} = 9.106145598x10^{-10} 1.9559985x10^{-15} = 0.70415946 R_e	5R_e/3
1	**-½ ± ½√(5)**	**0.618033988**	**-1.618033988**	**[2]½m_e√(1-x) 5.741861551x10^{-31} 5.720392198x10^{-31}**	**0.786**	**3.94031237x10^{-18} c v_{ps} = 1.182093711x10^{-9} 1.71676108x10^{-15} = 0.61803399 R_e**	**2 R_e**
1+½√2 = 1.707106781		**0.828427125 x-root is real**	**-1 = i^2 y-root is complex**	**[3.41/3.41]m_e√(1-x) 3.848262343x10^{-31} 3.833873334x10^{-31}**	**0.910**	**8.77216401x10^{-18} c 2.631649203x10^{-9} 1.150593228x10^{-15} 0.414213562 R_e =(√2 - 1) R_e**	**3.414213562 R_e = (2+√2) R_e**
2	0 ± ½√(3)	0.866025403	-0.866025403	**[4]⅙m_e√(1-x)** 3.400568951x10^{-31} 3.387853908x10^{-31}	0.931	1.123396092x10^{-17} c 3.370188275x10^{-9} 1.01673724x10^{-15} = 0.36602540 R_e	4 R_e
2.47213603	**0.095491515 ± 0.809016986**	**0.904508501**	**-0.7135255471**	**[4.94/4.94]m_e√(1-x) 2.870930718x10^{-31} 2.860196042x10^{-31}**	**0.951**	**1.576125021x10^{-17} c 4.728375064x10^{-9} R_{proton} =**	**4.94427206 R_e**

						$0.85838052 \times 10^{-15}$ $= 0.309016987\ R_e$	
3	$\frac{1}{6} \pm \sqrt{(7/12)}$	0.930429282	-0.597195949	**[6]$\frac{1}{6} m_e\sqrt{(1-x)}$** $2.450493743 \times 10^{-31}$ $2.44133112 \times 10^{-31}$	0.965	$2.163360455 \times 10^{-17}$ c $6.490081364 \times 10^{-9}$ $7.32673935 \times 10^{-16}$ $= 0.26376262\ R_e$	6 R_e
4	$\frac{1}{4} \pm \sqrt{(\frac{1}{2})}$	0.957106781	-0.457106781	**[8]$\frac{1}{8} m_e\sqrt{(1-x)}$** $1.924131173 \times 10^{-31}$ $1.916936668 \times 10^{-31}$	0.978	$3.50886558 \times 10^{-17}$ c $1.052659674 \times 10^{-8}$ $5.75296616 \times 10^{-16}$ $= 0.20710678\ R_e$	8 R_e
174,532,925.3 $-\{1 \pm 1/\sqrt{[1-ß^2]}\}/ß^2$ ~- $1\{1 \pm 1+\frac{1}{2}ß^2\}/ß^2$	**0.499999...4 ± 0.500000...5 $\sim \frac{1}{2}^- \pm \frac{1}{2}^+$**	**0.999999999.... $\{m_e/\alpha m_{ps}\}^2 =$ 1- $3.282806345 \times 10^{-17}$**	**-0.000000...1**	**[#/#]$m_e\sqrt{(1-x)}$ $5.323079946 \times 10^{-39}$ $5.303176457 \times 10^{-39}$ minimum mass (electron-neutrino) 0.00297104794 eV* $m_{\nu e} = m\nu_\tau^2$ = 0. 002982..eV***	**0.999**	**qbb boundary of physicality 0.045798805 c 13,739,641.79 $r_{ec} = r_{ps} = (m_e/\alpha m_{ps})R_e$ $1.59154943 \times 10^{-23}$ $= 5.7296 \times 10^{-9}\ R_e$**	**349,065,850.6 R_e**
∞	$\frac{1}{2}^- \pm \frac{1}{2}^+$	**1^-**	**0^-**	**$[\infty^-]0^+ m_e\sqrt{(1-x)} = m_e$ $m_{eo} = 0+$**	**1^-**	**algorithmic metaphysicality inflaton spacetime as complex $v_{ps} = ic = ci$**	**[∞] R_e**

The X-root is always positive in an interval from 0 to 1 and the Y-root is always negative in the interval from -3 to 0.
for A=∞: $ß^2 = \frac{1}{2}^- \pm \frac{1}{2}^+$ for roots $x=1^-$ and $y=0^-$; for v=c with $U_m = (\frac{1}{2}v^2)\mu_o e^2/8\pi R_e$
$= (\frac{1}{2}v^2)\mu_o e^2/4\pi R_e = \frac{1}{2}m_e c^2 = m_{magnetic}c^2 = m_{electric}c^2$ and $m_o = 0m_e$
$Aß^2 = ([1-ß^2]^{-\frac{1}{2}}-1) = 1+\frac{1}{2}ß^2-3ß^4/8+5ß^6/16 -35ß^8/128+...-1$

The Binomial Identity gives the limit of A=½ in: $A=\frac{1}{2} - ß^2\{3/8 - 5ß^2/16 + 35ß^4/128 -...\}$ and as the non-relativistic low velocity approximation of $E=mc^2$ as $KE=\frac{1}{2}m_o v^2$.

Letting $ß^2=n$, we obtain the Feynman-Summation or Path-Integral for dimensionless cycle time $n = H_o t = ct/R_{Hubble}$ with $H_o=dn/dt$ in the UfoQR
for $1 = (1-ß^2)(1+ß^2)^2$ as $ß^4+ß^2-1=0$ for $T(n) = n(n+1) = 1$.

From the unification polynomial $U(x) = x^4 + 2x^3 - x^2 - 2x + 1 = 0$ and derivative $U'(x) = 4x^3 + 6x^2 - 2x - 2$ with minimum roots at $x_1 = X$ and $x_2 = -(X+1) = Y$ and maximum root at $x_3 = \frac{1}{2}$ we form the factor distribution $(1-X)(X)(1+X)(2+X) = 0$ and form a unification proportionality:

SNI:EMI:WNI:GI = [Strong Nuclear Interaction #]:[Electromagnetic Interaction $\#^3$]:[Weak Interaction $\#^{18}$]:[Gravitational Interaction $\#^{54}$]
under the Grand Unification transformation of X ⇔alpha α

X ⇔ α in ℵ(Transformation)

$$= \{\aleph\}^3 : X \rightarrow \alpha\{\#\}^3 \rightarrow \# \rightarrow \#^3 \rightarrow (\#^2)^3 \rightarrow \{(\#^2)^3\}^3 \text{..................}\textbf{[EQ.8]}$$

This redefines the Interaction proportion as: SNI:EMI:WNI:GI = [#]:[$\#^3$]:[$\#^{18}$]:[$\#^{54}$] = [1X]:[X]:[1+X]:[2+X] for the X Alpha Unification, which is of course indicated in the unitary interval from A = 0 to A =1 in the $ß^2$ distribution for the electron mass.

SNI:EMI	[1-X]:[X]	X	X	$\#:\#^3$ $\#^{-2}$	$\alpha^{-2/3}$ $1/\sqrt[3]{\alpha^2}$	Invariant Upper Bound	X-Boson
SNI:WNI	[1-X]:[1+X]	[2X-1]	X^3	$\#:\#^{18}$ $\#^{-17}$	$\alpha^{-1/3(17)}$ $1/\sqrt[3]{\alpha^{17}}$		
SNI:GI	[1-X]:[2+X]	$[1-X]^2$	X^4	$\#:\#^{54}$ $\#^{-53}$	$\alpha^{-1/3(53)}$ $1/\sqrt[3]{\alpha^{53}}$		
EMI:WNI	[X]:[1+X]	[1-X]	X^2	$\#^3:\#^{18}$ $\#^{-15}$	α^{-5} $1/\sqrt[3]{\alpha^{15}}$		
EMI:GI	[X]:[2+X]	[2X-1]	X^3	$\#^3:\#^{54}$ $\#^{-51}$	α^{-17} $1/\sqrt[3]{\alpha^{51}}$		
WNI:GI	[1+X]:[2+X]		X	$\#^{18}:\#^{54}$ $\#^{-36}$	α^{-12} $1/\sqrt[3]{\alpha^{36}}$	Invariant Lower Bound	L-Boson

For the unitary interval at A=½ the Compton constant defines $m_e.R_e$, but at A=1, the constancy becomes ½m_e.2R_e and at the average value at A=¾ it is ⅔m_e.(3/2)R_e.

This crystallizes the multiplying (4/3) factor calculated from the integration of the volume element to calculate the electromagnetic mass in the Feynman lecture and revisited further on in this paper. if the electrostatic potential energy is proportional to half the electron mass is changed by a factor of (4/3), then the full electron mass will be modified to ⅔ of its value.

Using the $ß^2$ velocity distribution, one can see this (4/3) factor in the electromagnetic mass calculation to be the average between the two A-values as ½(½+1) = ¾ for a corrected electron mass of $⅔m_e$ and for a surface distribution for the electron.

The problem with the electromagnetic mass so becomes an apparent 'missing mass' in its distribution between the electric- and magnetic external fields and the magnetopolar self-interaction fields as indicated in this paper.

In the diagram above the mass of the electron is distributed as m_{ec} in the unitary interval applied to the Compton constant and where exactly half of it can be considered imaginary or complex from A=0 to A=½. The mass of the electron at A=0 is however simply half of its effective mass m_e, which is realised at the half-way point at A=½ as the new origin of the electron's electrostatic energy without velocity in the absence of an external magnetic field. We have seen however, that the electrostatic electron carries a minimum eigen-velocity and so magnetopolar self-energy, calculated as v_{ps} = 1.50506548x10^{-18} c and manifesting not as a dynamic external motion, but as $f_{\alpha\omega}$ = 2.84108945x10^{-16} = $\sum f_{ss}$ = $\sum m_{ss}c^2/h$ = $f_{\alpha\omega}/f_{ss}$ = 8.52326834x10^{14} mass- or frequency self-states.

M-Sigma conformal mapping onto $\{m_{eo}/m_e\}^2$ in the $ß^2$ distribution

As the $ß^2$ distribution is bounded in $\{A_{ub} - A_{lb} = ⅔\alpha^{⅔}\}$ as a sub-unitary interval in a smaller sub-interval of $½\alpha_{var}$; the SI-CODATA value for the Restmass of the electron is derived from first inflaton-based principles in a conformal mapping of the M-Sigma relation applied to the Black Hole Mass to Galactic Bulge ratio for the alpha bound.

Minimum Planck Oscillator $½\|E_o\| \Leftrightarrow \|E_{ps}\|^* = 1/\|e^*\|$	$½\|E_{ps}\|$	$¾\|E_{ps}\|$	$1\|E_{ps}\|$	$5/4\|E_{ps}\|$	$3/2\|E_{ps}\|$
Value in energy (Joules; Joules*)	1/1000	1/666⅔	1/500	1/400	1/333⅓
Value as modulated to A-interval as M-Sigma	1x10^{-3}	1.5x10^{-3}	2x10^{-3}	2.5x10^{-3}	3x10^{-3}
$\|E_{ps}\|^*/\|e^*\|$ to reunitize-renormalize E*e*=1	2x10^{-6}	3x10^{-6}	4x10^{-6}	5x10^{-6}	6x10^{-6}
⅔-value in partition interval $⅔m_e.(3/2)R_e$ for mean A=¾	1/2	3/4	1	5/4	3/2
Fraction of Renormalization effect	1/3	1/2	2/3	5/6	1
Value of $\Delta(½\alpha_{var}\}$ in $A_{6lb} - A_{6ub}$ and in $A_{3ub} - A_{3lb}$	2x10^{-6} complex minimum	3x10^{-6}	4x10^{-6}	5x10^{-6}	6x10^{-6} real maximum

The $½\alpha_{var}$ sub-interval so is adjusted by $6x10^{-6}$ from $A_{6ub} - \Delta(½\alpha_{var}\} = A_{SI}$ for $ß_{SI}^2$ for $m_{eo}SI$ for the real solution

The Schwarzschild Classical Electron as a Planck function for a Quantum of Physicalized Consciousness

$m_{ebh} = R_ec^2/2G_o = e^*/4G_o|_{mod\text{-}mass} = V_{rmp}.df/dt|_{max}/4G_o = 2\pi^2R_{rmp}^3.f_{ps}^2/4G_o$
$= 1.125x10^{12}$ kg*

is the Schwarzschild wave matter mass for a classical electron with curvature radius R_e and effective electron mass m_e in the electromagnetic interaction E*-Gauge photon of the supermembrane displacement transformation between the monopolar and electropolar universal charge quanta e* and e respectively.

The energy density for this modular 'dark matter-consciousness' electron as function of the 'Planck Vacuum' becomes:
$\rho_{planck} = m_{planck}/V_{planck} = m_{planck}/L_{planck}^3 = 2\pi c^5/hG_o^2 = \{8\pi c^3 \lambda_{ps}^2/hG_o\}.\{f_{ps}^2/4G_o\}$
$= 1.855079x10^{96}$ (kg/m^3)*
$\rho_{ebh\text{-}rmp} = m_{ebh}/V_{rmp} = df/dt|_{max}/4G_o = f_{ps}^2/4G_o = 2.025x10^{70}$ (kg/m^3)* $= 1.0916x10^{-26}\ \rho_{planck}$
$M_{rmp} = m_{fermi} = h/2\pi cR_{rmp} = 2.50500365x10^{-23}$ kg* or 14.034015 TeV*
is the Compton-de Broglie wave-matter mass for the Restmass Photon rmp as the 'dark matter' particular agent in the UFOQR and here redefined as the 'Particle of Universal or Cosmic Physicalized Consciousness'.
$R_{rmp} = \sqrt[3]{\{V_{rmp}/2\pi^2\}} = \sqrt[3]{\{2R_ec^2/(2\pi^2.df/dt|_{max})\}} = \sqrt[3]{\{e^*/2\pi^2f_{ps}^2\}}|_{mod} = \sqrt[3]{\{1/2\pi^2hf_{ps}^3\}}|_{mod} = 1.411884763...x10^{-20}$ m*
for a unitary calibration for the rmp in [m^3]* = [s^3/h]* and [m]* =[s]*/$\sqrt[3]{h}$ for M_{rpm} in [kg]* = [Js^2/m]*x$\sqrt[3]{h}$/[s]* = [Js/m]*x$\sqrt[3]{h}$ = [kg]*
$M_{rmp} = m_{fermi} = h/2\pi cR_{rmp} = \{h/2\pi c\}.\{\sqrt[3]{\{2\pi^2hf_{ps}^3\}}|_{mod}\} = \{hf_{ps}/c\}\sqrt[3]{\{2\pi^2h/8\pi^3\}}|_{mod} = \{E_{ps}/c\}\}\sqrt[3]{\{h/4\pi\}}|_{mod}$

$M_{rmp} = h/2\pi cR_{rmp} = \{E_{ps}/c\}\}\sqrt[3]{\{h/4\pi\}}|_{mod} = 2L_{planck}^2c^2/R_{rmp}R_e = L_{planck}^2c^2/G_oR_{rmp}$ in the equivalence of the Gravitational parameter applied to de Broglie wave matter M_{dB} in $4G_oM_{dB} = 2R_ec^2 = e^*$ with the Star Coulomb [C*]*as the unit for physicalized consciousness.

Closed Planck-String class I Finestructure Constant for monopolar mass displacement current [M] = $[ec]|_{mod} = [2\pi R.i]_{mod}$:
$M_{rmp}/m_{ebh} = 2hG_o/2\pi c^3R_{rmp}R_e = 2L_{planck}^2/R_{rmp}R_e = 2.226669925x10^{-35}$
$= 1/4.491011392x10^{34}$ = Order{Planck-Length}
Dark Matter-Physicalized Consciousness Finestructure Constant:
$R_e/R_{rmp} = 4\pi G_oM_{rmp}m_{ebh}/hc = 62,625.09124 = 1/1.596804061x10^{-5}$

The nature of the universal Schwarzschild classical electron as a high-density form of de Broglie wave matter so becomes an elementary agency for quantum gravity manifesting from the hyperspace of the multi-dimensional cosmology as non-Baryonic form of matter energy and is related to the definition of physicalized consciousness in the Unified Field of Quantum Relativity (UFOQR).

The UFOQR is based on Vortex-Potential-Energy or VPE as the non-virtual, but Goldstone Boson gauged Zero-Point-Energy Heisenberg matrix of spacetimes.

Epilogue:

The birth of the universe in space and time from physicalized universal consciousness

Time began, when the nonexistent and the uncreated became conscious of itself and what ‘It’ was, as also being ‘It’ as the existent and as the created.
The difference between the uncreated and the created then describes the concept of time as a process for ‘It’ of becoming conscious of itself in the form of a universal self, using time potentials to experience itself as a form of energy. ‘It’ created itself as a universal self in realizing its own potential from the uncreated state of ‘It’ in no time to create itself in ‘Now time’, and therefore giving birth to time.

Consciousness so is a form of source energy, which forms a relationship between the nonexistent and uncreated and the existent and created.
This original consciousness also forms a partnership between the energy forms in existence and the energy forms not in existence in the form of the consciousness energy as imagination.

The not existing or ‘Nothingness’ of a potential and eternal void was as ‘One’ with the ‘Every thingness’ of ‘All that It could have been’ and was as ‘All That Is’ and could be in a realization of the energy potentials contained in the eternity of the void.
And the movement and dynamic of differentiating the potentials of the ‘could have been’ from the potentials of the ‘could be’ became the definition of differentiating the order of before and after as a flow of time from the relative past to the relative present to the relative future.

The imagination in self-consciousness so exists to realize the potentials of the source energy in a form of the forethought realizing itself as the afterthought. This process connects the time relative past with experienced realized energy potentials through the time relative present moment or now time to the time relative future with not experienced and unrealized energy potentials of the source energy, albeit distributed in the parts of the source energy.

The source energy so experiences the ‘flow of time’ as a principle of order where event B cannot occur before event A has become happenstance in the realization of a relative time potential.
The relativity of time potentials then becomes self-relative in the form of the source energy and its partition into sub structures of the precursor or parent source energy.
The duration between events A and B so becomes a function of the relativity of time as experienced or measured or counted in the distributed forms of the source energy and as a self-relativity of the worlds within worlds of an encompassing overworld or super realm of the source energy.

This super world is known as universe emerging from a protoverse to evolve into a multiverse and being encompassed as an omniverse as a necessary boundary- and initial condition to enable the source energy experience itself through the time potentials in a spacetime interwoven with the time potentials.
The birth of the universe is known as the separation of a world above called ‘Heaven Above’ from a world below called ‘Earth Below’ in the creation of a spacetime mirror called the ‘Firmament’.
This process was the separation of the ‘Notime’ from the ‘Now time’ and defines the original realization

of the original time potential by the source energy.
This process is also known as a quantum fluctuation of a mathematical singularity, physicalizing the metaphysical or 'spiritual' universe without the parameter of spacetime within a spacetime defined in the mathematical singularity. The creation and birth of time so also gave birth to spacetime in the form of the mathematical singularity defining both a space parameter and a time parameter to become interwoven or 'quantum entangled' with each other in a spacetime parameter, known as the wormhole parameter of a quantum tunnel connecting the two worlds separated by the firmament of the spacetime mirror.

The quantum tunnel, connecting heaven to earth, so is also known as a Einstein-Rosen bridge connecting a Planck-Stoney cosmology to a Weyl-Hawking cosmology in the utility of a 12-dimensional Vafa-Witten spacetime mirror.
The Planck-Stoney cosmology then forms the higher dimensional universe known as the membrane-superstring physics using the 11th dimension in a mirror symmetry to connect the 12th dimension of an 'old heaven' to the 10th dimension of an 'old earth', emerging or evolving from the 1st dimension and mirroring a 0th or Null dimension in the 13th dimension as a boundary for the 'old heaven'. The lower dimensional universe is bounded in the 1st dimension and so is the mirror image of the 12th dimension across the mirror of the 11th dimension, which so is also the 2nd dimension in the root reduction of the numbers 12=1+2=3 with 11=1+1=2 and 10=1+0=1. The lower dimensional universe so occupies the spacetime of 3 space dimensions and connects to the higher dimensional universe in a 4th spacetime dimension.

The 4th dimension so is a time dimension, which can also be a space dimension, should the higher dimensional universe reconfigure itself by using the spacetime mirrors of the 2nd and 11th dimensions in a transformation of the 8 dimensions between dimensions 2 and 11 and in using the quantum tunnel as the thickness of the universal mirror of universal time. The 3rd space dimension so is born and created in transforming the 8 dimensions in the quantum tunnel as a new mirror of time as the 7th dimension separating dimensions 8, 9 and 10 from dimensions 4, 5 and 6 in a trio of time dimensions 4, 7 and 10.
The mathematical singularity or quantum fluctuation creating the universe in spacetime from the consciousness of the nowhere in notime, so partitioned a 12-dimensional universe into 4 worlds in spacetime and 3 worlds of 4-dimensional space in notime.

The first world of 4-dimensional line-space of dimensions 1, 2, 3 and 4 is connected to the second world of 4-dimensional space of dimensions 5, 6, 7 and 8 as a 7-dimensional rotation-space by the 4th spacetime dimension known as Minkowski time-space and the second 7-dimensional world is connected to the third world of 4-dimensional space as a 10-dimensional vibration-space by the 7th spacetime dimension, known as Penrose time-space.
As the third world of four space dimensions without time manifests dimensions 9, 10, 11 and 12; a third time-space is created in the 10th space dimension, known as String time-space.
The three worlds of 4-dimensional spacetimes so are described as occupying line-space, twistor-space, frequency-space and quantum-space in 1-3 and 4-6 and 7-9 and 10-12 dimensions as four worlds of spacetimes connected to each other in a shared time-space dimension closing the 3 dimensional continuum or circle from the 1st dimension to the 12th dimension in time connector dimensions 4, 7 and 10 or the algorithmic sequence Begin(1|0)-2-3-(4|1)-5-6-(7|2)-8-9-(10|3=1*)-(11|2=2*)-(12|1=3*)-(13|0=4*)End forming the boundary-initial condition of mirroring heaven in earth in the dimensional root reductions of 10=1+0=1 and 11=1+1=2 and 12=1+2=3 defining the line-space, the area-membrane-

space and the volumar-space in 3 dimensions in the lower dimensional universe but mirrored in the higher dimensional universe in dimensions 10, 11 and 12.

The 8 dimensions describing the 'thickness' of the spacetime mirror connecting heaven to earth, so originally manifest the physical universe in the birth of spacetime in the wormhole parameters of the Weyl-Hawking cosmology. It does this in transforming a one-sided mirror, known as the dragon Möbius, defined in 2 dimensions of a 3 dimensional space into a two-sided mirror, known as the dragon Klein. The dragon Möbius resides in the area- or membrane space of the Mathimatia, which is a label describing the consciousness realm of 'Universal Intelligence' also known as the Universal Word or Logos-Sophia. Möbius so is both a 2-dimensional mathematical dragon and a 11-dimensional mathematical dragon connecting its particular membrane space of geometric occupancy to its environmental space as its cave of residence or embedment of 3-dimensional geometry in the lower dimensional universe of the old earth and the 12-dimensional geometry in the higher dimensional universe of the old heaven.

The transformation of the old heaven with the old earth into a new heaven with a new earth then is defined in the dragon Möbius in mathematical 2-dimensional membrane space and residing in mathematical 3-dimensional volumar space changing into the dragon Klein defined in 3-dimensional volumar space and residing in 4-dimensional volumar space, also known as hyper-space within a 5-dimensional spacetime with the 7th dimension of Penrose time-space. The Möbius-Klein dragon metamorphosis of Minkowski time-space into Penrose time-space with the transformation of 3-dimensional line-space within 4-dimensional spacetime into 4-dimensional hyper-space within 5-dimensional spacetime so changes the one-sidedness of the Möbius dragon mirror into a two-sidedness of the Klein dragon mirror. Before the transformation, the old heaven in the 12th dimension is trapped and restricted in the so is one-sidedness of the self-reflection of the consciousness of the source energy.

The creation of the universe and the quantum tunnel required the thickness of the 11-dimensional quantum mirror to transform this thickness into its lower 10-dimensional equivalence as a medium of self-reflection for the source energy. The 10-dimensional String time-space so expanded itself through the wormhole parameters of the Planck-Stoney and the Witten-Hawking cosmologies from the 11th dimension as a root reduced 2nd dimension and so creating the 3rd dimension of the line-space in the quantum tunneling of the 12th dimension through the thickness of the quantum tunnel as a 'timing machine'.

As this manifested the birth of space and time in a one-sidedness of direction from the 12th dimension to the 3rd and as the 3 worlds of volumars in the 4-space worlds of 1-4 and 5-8 and 9-12 dimensions, the old heaven became subject to the one-sidedness of the creation event of the quantum universe coming into existence from the consciousness or source energy of the creation-creation duality. The old heaven so formed a creator-creation duality with the old earth and in which the creator part is defined in the darkness on the non-reflecting surface of the one-sided Möbius mirror as the left side above the firmament and the reflecting surface of the dragon Möbius, also known as the mirror of the Sabbath rest defining the light of the creation being emitted into the creation as the right side of the firmament below. The existence of the universe in spacetime, then enabled cycles of light and darkness to prepare the time potentials to evolve into a process by which the old earth could become a new earth in using the dragon Klein as a two-sided spacetime mirror embedded in a 4-dimensional space as a 5-dimensional hyper-spacetime. The two-sidedness of Klein would then be able to reflect a processed monopolar electromagnetic source light to back towards the 11-dimensional Witten mirror as a consequence of the breaking of the Möbius mirror destroying the one-sidedness and replacing it with the two-sidedness of Klein. The replacing of the archetypical low vibration red dragon Möbius with the archetypical high vibration blue dragon Klein would so create a new heaven as the image of the new earth.

The creator-creation duality so describes the original existence-nonexistence dichotomy as a dyadic monad of being two things within one thing, but unable to experience the two things as one unity, due to the in separateness of the two things in the absence of the existence of space to separate in.
A monadic dyad as two things unified as one thing would however allow a separating in space between the two things, if the two things could become irrevocably connected with each other. The time potentials of the source energy so define the quantum entanglement as a space independent parameter of spacetime as a primary foundation for the cosmology of the source energy as universal consciousness.

The old heaven so released its consciousness energy as electromagnetic-monopolar light to enable the transformation of consciousness into energy forms subject to spacetime parameters derived from the wormhole cosmology of the mathematical singularity geometrically defined in the dragon Möbius, transforming into the dragon Klein using the time potentials of the source energy as universal consciousness. This transformation of source energy was initiated in the Planck-Stoney cosmology, which defined interdependent units for measurement and experience under the guidance of universal principles, also known as the laws of nature. The time potential for the transformation of the Planck-Stoney cosmology into the Witten-Hawking cosmology became realized in the quantum tunneling creating the 3rd dimension from the thickness of the 11-dimensional Witten membrane mirror and allowed the transmutation of five superstring classes of the 10-dimensional String time-space into each other in a gradient of energy between the five classes. The first class so is known as the Planck string, the second class as a Monopole string, the third class as a XL-boson class, the fourth class as a Cosmic Ray string and the fifth class as a Weyl string, the last enabling the 4-dimensional Minkowski spacetime to emerge as a Einstein-Maxwell-Planck cosmology, descriptive of a thermodynamic expansion of the universe as a Black Body Planck Radiator emitting electromagnetic radiation in frames of references relating inertial mass parameters with non-inertial parameters.

The definition of physicalized consciousness in the refence frame of the source energy of universal intelligence

As a noninertial frame of reference experiences a form of acceleration relative to an inertial frame of reference; the form of acceleration becomes the mode of operation for measurements using the laws of nature. When measuring the weight of something on the earth's poles, this weight will be greater than if measured on the equator by about 0.53 %, because there is no horizontal force on the weight as the earth spins around its axis; but there is a 'fictitious horizontal force' on the equator, where the weight moves in a circle about the axis of the earth in a period of rotation of about 24 hours. The vertical reaction force on the weight on the poles exactly balances the action force of gravity without any horizontal force component; but on the equator the vertical action force of gravity is balanced by both, the vertical reaction force of the weight and a vertical component, horizontal relative to the poles, as the fictitious centrifugal force. The gravitational action so is measured as a reduction in weight and in the absence of the centrifugal force component. This example supposes a perfect spherical symmetry for the earth. As the earth is flattened on the poles as an oblate spheroid, gravity on the poles is greater than at the equator as the poles are closer to the center of the earth, than is the equator.

It is so the inertia, which causes fictitious forces as non-accelerated frames of reference for measurement and observation in a classical physics of Newton's laws and Einstein's extension of the laws of mechanics in the curvature of spacetime incorporating the inertial frames of reference of Special Relativity within the non-inertial accelerated frames of reference of General Relativity. The classical physics of Newton, Maxwell and Einstein is based on the geometry of spacetime and is applied to describe the geometry of the universe as an interaction of physical entities within a spacetime of both inertial and non-inertial reference frames. Minkowski spacetime is considered flat without curvature and Penrose spacetime is considered curved or twisted in a geometry of positive ellipsoidal or negative hyperbolic curvatures underpinning the force of gravity as a curvature of spacetime interacting with mass as the basis of inertia.

The physical basis for consciousness as the source energy so becomes the precursor of inertia and so mass in the original nature of a non-inertial reference frame. The mass content of the universe at the creation event of the quantum tunneling of the 12th dimension transforming into the 3rd dimension of the parameters of the Weyl string and as the total inertia of the universe was caused by the non-inertial and so accelerated frame of reference of the source energy in form of universal spacetime consciousness quantum tunneling as a function and derivative of the Planck string transforming into the Weyl string.

The non-inertial reference frame of the source energy so defined the original spacetime unit as a source energy quantum of physicalized consciousness in the Weyl wormhole parameters of creation, also known as a Quantum Big Bang.

The connection and unification between all forms of energy as derivatives of the source energy of universal consciousness so is found in the Mathimatia of the Universal Logos-Sophia, which utilizes the Euclidean classical geometry of Newton, Maxwell, and Einstein as a consequence from a quantum geometry of Planck, Stoney, and Witten.

The Origin of all the energy in the Universe as a transformation of the mathematical-metaphysical singularity as a Planck-Stoney Quantum fluctuation of Dirac's magnetic monopole

It then becomes a quantum acceleration, which forms the basis for a physical definition of the source energy and physicalized consciousness. Angular acceleration of an elementary particle, such as a proton, a neutron, an electron, or a neutrino is known as quantum spin defined as a half-integer fermionic quantum rotation or as a integer bosonic quantum rotation multiplied by a constant spacetime parameter called Planck's constant h divided by 2π.

Angular acceleration is by definition independent from linear displacement, the parameter of linear extent being replaced by angular extent. In the quantum geometry of the source energy, the units of measurement or mensuration for the quantum acceleration so assume the form of frequency divided by time or the inverse of the square of time, generalised as the time differential of frequency or df/dt.

Logos Mathimatia or the universal intelligence then defines the parameter df/dt as the unit of spacetime awareness, which if multiplied by the wormhole volumar of the Weyl string V_{weyl} of the Quantum Big Bang will define the source energy quantum from first principles as {proportionality constant}.V_{weyl}.$\{df/dt\}_{weyl}=E_{weyl}=hf_{weyl}=m_{weyl}c^2=k_BT_{weyl}$, in the mathematical formulations for the energy transformations in electromagnetic radiation (Planck) and mass (Einstein) and temperature as kinetic energy (Stefan-Boltzmann) respectively.

A supersymmetry between the electric- and magnetic field vectors in Maxwell's equations for electrodynamical energy systems emerges as a consequence of the source energy physicalizing its original energy definition as a form of mass independent consciousness and as a function of quantum angular acceleration defined in a space-less void of the mathematical or metaphysical singularity. The absence of mass or inertia defines the quantum acceleration as the time derivative of frequency as a pure number count not requiring any spatial coordinates or displacements and by necessity relate a frequency distribution as a quantized number field given by particular boundary- and initial conditions, defining a particular form for the frequency distribution once the space coordinates and displacement vectors are added to the frequency distribution at the instanton-inflaton coupling defining the parameters of a Quantum Big Bang redefining the mathematical singularity. The boundary conditions for the frequency distribution then assume the form of a maximum and a minimum permutation count under an inversion duality and as defined in the T-duality of superstring-membrane theory.

The initial condition for the transformation of the source energy as a metaphysical singularity in null space into displacement coordinate-vector space, then defines a maximum frequency permutation self-state unifying with its minimum frequency permutation state in the form of the time differential for frequency or df/dt. In the null space of the singularity, the inversion property so defines the maximum frequency state f_{max} for a time coordinate t_{min} and the minimum frequency state $f_{min}=1/f_{max}$ with t_{max} not defined as a limit or upper bound for a subsequent expansion of the coordinate space emerging from the null space.

The eigen state for the source energy so is defined in a source energy quantum of metaphysical consciousness physicalized in a Quantum Big Bang and as a consequence of defining the minimum spacetime configuration in the quantum fluctuation of the mathematical singularity. This null space so is space-less and without energy as defined in spacetime, but nevertheless carries energy in the form of not physicalized consciousness defined metaphysically or in abstract mathematical terms.

The null space is descriptive of the 12-dimensional universe of the mathimatia and remains not physicalized until the boundary of the 5^{th} superstring class has become defined in the physical null space.

The source energy quantum for physicalized consciousness and therefore physicalized energy so is defined as the Weyl-boson of the Quantum Big Bang self-creation event, creating spacetime as the Weyl-wormhole as a transformed superstring class from the first superstring class of a Planck-boson causative and defining the quantum oscillation of itself to manifest the spacetime parameters created in a physicalisation of the Planck-boson as the Weyl-boson at the instanton as the birth of spacetime and coupled to a inflaton as the upper boundary initial condition for the lower boundary as the instanton.

At the instanton $df/dt|_{max}=df/dt|_{weyl}=df/dt|_{primarysourcesink}=df/dt|_{ps}=f_{max}/t_{min}=f_{max}^2$ for $E_{ps}=E_{weyl}=hf_{ps}=hc/l_{ps}=m_{ps}c^2=k_BT_{ps}$

The physicalized energy expressions with unitary mensuration units for the spacetime parameters however emerged from the null space, describing the higher dimensional 'string-membrane' space and this 'definition spacetime' of the 5 string classes preceded the Weyl-boson spacetime in the frequency- or number-space modulating the spacetime parameters and measurement units to define the Weyl-Eps-boson in the units of the Witten spacetime.

$E_{ps}=E_{weyl}=\{m_{electron}/2e\}\sqrt{\{hc/2\pi G_o/hc\alpha\}}|_{mod}=\{m_{planck}/m_{electron}\}/\{2e\sqrt{\alpha}\}|_{mod}$ and defining the source energy quantum as having units of Inverse electropole charge or 1/e defining a magnetopole charge $e^*=1/E_{weyl}$ as the proportionality condition for multidimensional unification $E_{weyl}.e^*=E_{ps}.e^*=1$ and for $2e/e^*=2e.E_{ps}$ = constant = $\{m_{planck}/m_{electron}\}/\{\sqrt{\alpha}\} = G_o m_{electron}/2e^2\}$.

In the manifested spacetime from the quantum Big Bang, the magnetopole charge e* has the units of the gravitational parameter GM in the form of $e^*=2R_{electron}c^2$ in units $[Volume][df/dt]=[m^3/s^2]$

Using the mass of the electron and the Planck-mass as a dimensionless ratio, the Planck-mass is proportional to the Planck-length in the quantization of quantum angular momentum in $m_{planck}=\sqrt{\{hc/2\pi G_o\}}$ with $L_{planck}=\sqrt{\{hG_o/2\pi c^3\}}$ in Planck' constant $G_o m_{planck}^2/c=h/2\pi= c^3L_{planck}^2/G_o$ for the proportion $m_{planck}=\{c^2/G_o\}L_{planck}$ by the generalised finestructure unification $G_ok_e=1$ from $2\pi G_oM^2/r^2=2\pi k_ee^2/r^2$ with the Maxwell fine structure $\mu_o\varepsilon_o=\{120\pi/c\}\{1/120\pi c\}$ and the free spacetime impedance $Z_o=\sqrt{\mu_o/\varepsilon_o\}}=120\pi$. Here $G_o=4\pi\varepsilon_o|_{mod}=\{4\pi/120\pi c\}|_{mod}=1/30c|_{mod}$.

The monopole string class so 'unifies' Electromagnetism with Gravitation via the gravitational finestructure assuming not a Weylian fermionic nucleon, but the bosonic monopole from the $k_eG_o=1$ initial-boundary condition $G_om_{Monopole}^2=k_ee^2$ for $m_{Monopole}=e/G_o=k_ee=[30ec]_{mod}=m_{planck}.\sqrt{a}$. The 'Grand-Unification' magnetic monopole mass so becomes $[30ec]_{mod}c^2=30ec^3$ eV* for a magnetic monopole mass of 8.1×10^{17} GeV* manifesting in Weyl-spacetime as a defect in the Higgs-boson symmetry, breaking a SU(3)SU(2)U(1) gauge symmetry in the supersymmetry of a SU(5) string-membrane spacetime. The Higgs-boson, as a universal mass generator from its quantum geometric template; so manifests the magnetic monopole as a magnetic point charge, manifesting in a magneto-current mass equivalence in the modulation of $[ec]_{mod}$=[monopole mass $m_{monopole}$]=[monopolar current $i_{monopole}$]=[electropolar charge e]x[displacement/time] and where the displacement of the magnetic point charge occurs in the string modular space of the 'bounce' of the Planck-Length as the oscillation of a Zero-Point Planck-boson oscillator defining the minimum spacetime configuration of superstring class one transforming into superstring class 2 as the Monopole-boson and manifesting the quantum Big Bang in superstring class 5 at the instanton-inflaton coupling, creating spacetime in the Weyl-boson and the inflaton.
The quantum fluctuation of the Planck-boson is defined in the 'bounce' of the Planck length as $L_{stoney}=\sqrt{\alpha}.L_{planck}=\sqrt{\{2\pi k_ee^2/hc\}}.\sqrt{\{hG_o/2\pi c^3\}}=\sqrt{\{k_eG_oe^2/c^4\}}=e/c^2$. And modulate the string displacement of the 'Planck bounce' as the ratio of electropole charge to the square of the speed of light. Substituting L_{stoney} for the mass-current equivalence of the magnetic monopole $[ec]|_{mod}$=[mass]=[monopolar current/Stoney displacement]=$[ec/(e/c^2)]=[c^3]_{mod}$ as the energy of monopole [ec] as a mass in $c^3=2.7\times10^{16}$ eV*. A monopole mass of $[ec]_{mod}=4.818\times10^{-11}$ kg* or 2.7×10^{16} GeV* so is upper bounded by the monopole string as a Higgs defect of 8.1×10^{17} GeV* and a factor of 30.

The proportionality constant in units mass/displacement [kg/m] describes Maxwell's displacement current in the non-inertial reference of the Stoney units of the transformation of the Planck string into the Stoney monopole string.

As the Planck string suppresses the parameter of electric charge 'e' in the Planck displacement or Planck length $L_{planck}=\sqrt{hG_o/2\pi c^3}$ and Planck mass $m_{planck}=\sqrt{hc/2\pi G_o}$ and the Planck time $t_{planck}=L_{planck}/c=\sqrt{2\pi G_o h/c^5}$ with the Planck energy $E_{planck}=m_{planck}.c^2=h/t_{planck}$ and Planck temperature $T_{planck}=E_{planck}/k_B=\sqrt{hc^5/2\pi G_o k_B^2}$ from Newton's law for gravitational force $F_{grav}=G_oMm/R^2$, and from Coulomb's law for electric force $F_{emr}=k_e e^2/R^2$.

This defines a Planck charge $q_{planck}=\sqrt{hc/2\pi k_e}=\sqrt{2\varepsilon_o hc}=e/\sqrt{\alpha}$ for a Coulomb electric permittivity constant $\varepsilon_o=1/m_o c^2$ and an magnetic permeability constant μ_o from the Maxwell equations for classical electromagnetism and the electromagnetic finestructure constant $\alpha=2\pi k_e e^2/hc$. The electromagnetic finestructure constant alpha a so becomes the agency to transform the Planck units into Stoney units.

The Stoney string suppresses the Planck- and Action constant 'h' in the Stoney length $L_{stoney}=\sqrt{G_o k_e e^2/c^4}$ and a Stoney mass $m_{stoney}=\sqrt{k_e e^2/G_o}$ and the Stoney time $t_{stoney}=\sqrt{G_o k_e e^2/c^6}$ with Stoney energy $E_{stoney}=m_{stoney}.c^2=h/t_{stoney}$ and Stoney temperature $T_{stoney}=E_{stoney}/k_B=\sqrt{k_e e^2 c^4/G_o k_B^2}$.

This defines a Stoney charge $q_{stoney}=e$ as the Coulomb charge quantum and defines Planck's constant $h=2\pi k_e q_{planck}^2/c=2\pi k_e e^2/c =2\pi k_e q_{stoney}^2/c=\alpha h$ for a unitized finestructure constant being 1 in Stoney units but being about 1/137 in Planck units using the numerical values for the constants of nature defined in the symbols of the mathimatia.

The proportionality constant for the unification of the electromagnetic and gravitational forces or energy interactions so is obtained in the ratio of the Stoney mass to the Stoney displacement or $m_{stoney}/Ls_{toney}=\sqrt{(k_e e^2/G_o)/(G_o k_e e^2/c^4)}=\sqrt{c^4/G_o^2}=c^2/G_o$ and the same ratio of the Planck mass to the Planck length in
$\sqrt{(hc/2\pi G_o)/(hG_o/2\pi c^3)}=\sqrt{c^4/G_o^2}=c^2/G_o$.

Maxwell's mass displacement current for the 'flow of inertia' so is quantum gravitationally expressed in the constant c^2/G_o and where Newton's gravitational constant G is applied to a inertia free or massless universe defined in a curvature of 'free space' for the Maxwell definition for the invariance of the speed of light and propagation of electromagnetic waves and in the formulation $\mu_o.\varepsilon_o=1/c^2$ and fine structured in the 'free space impedance' $Z_o=|$Electric Field Strength $\mathbf{E}|/|$Magnetic Field Strength $\mathbf{H}|$ $=\sqrt{\mu_o/\varepsilon_o}=\sqrt{(120\pi/c)/(1/120\pi c)}=120\pi$.

In an inertia free universe without mass, the curvature would become independent on mass and the displacement parameter would be given in the Stoney length $L_{stoney}=\sqrt{G_o k_e e^2/c^4}$ and where the curvature would be defined in the proportionality constant $\sqrt{G_o k_e}$ in units of $\sqrt{[Nm^2/kg^2][Nm^2/C^2]}=\sqrt{[m^6/s^4.C^2]}=[m^3/s^2C]$ and so the units of the gravitational parameter GM divided by the units of Coulomb charge 'e' and the units of spacetime awareness multiplied by the units of a spacetime volumar divided by the units of the charge 'e'. The quantum physics of this formulation enables the Logos mathimatia to unitize both the gravitational parameter GM and the consciousness quantum (proportionality constant)$V_{weyl}.\{df/dt\}=1/e^*$ in a definition of e* being the magnetopolar charge as inversion of the quantum energy formulations $E=hf=mc^2=k_BT$. Instead of the unit for electropolar charge using the Coulomb [C], the magnetopolar charge uses the Star Coulomb [C*] as the unit of measurement.

This unitization of the units of the Stoney length in the Star Coulomb also unitizes the product of the proportionality constant in the Stoney length as $G_o k_e=1$ and therefore unifies the energy interactions of gravitation and electromagnetism on the quantum level of the source energy.

This also redefines the Stoney length as $L_{stoney}=\surd\{G_o k_e e^2/c^4\}= L_{stoney}=\surd\{e^2/c^4\}=e/c^2=$ $L_{stoney}=\surd\alpha.L_{planck}=\surd\{2\pi k_e e^2/hc\}.\surd\{ hG_o/2\pi c^3\}=\surd\{k_e G_o e^2/c^4\}=e/c^2$. The Stoney length e/c^2 in the units of displacement of the Planck length, so represents the quantum fluctuation causative for the Quantum Big Bang and the separation of the old heaven from the old earth in a factor of the inverse of the square root of alpha or a numerical factor of about 11.706=1/0.0854 describing the oscillation of the Planck length between a linear displacement value of $\{e/c^2=1.784\times10^{-36}$ m*} and $\{\surd\{hG_o/2\pi c^3=2.090\times10^{-35}$ m*} in star units derived from the free space impedance where the speed of light is precisely 3×10^8 [m/s]*=2.99792458×10^8 [m/s] SI.

A fundamental natural law multidimensional universe crystallizes from the definition of the 'free space impedance' $Z_o=|\mathbf{E}/\mathbf{H}|=\surd\{\mu_o/\varepsilon_o\}=\surd\{(120\pi/c)/(1/120\pi c)\}=120\pi$ in the unitary analysis: $Z_o=\surd\{(H/m)/(F/m)\}=\surd([Js^2/C^2m]/[C^2/Jm])=[Js]/[C^2]$ = [Action/Charge^2] in Ohms [Ω]=[V/I]=[Js/C^2] and proportional to [h/e^2] as the 'higher dimensional source' for the manifesting superconductivity of the lower dimensions in the quantum Hall effect (~e^2/h), the conductance quantum ($2e^2/h$) and the Josephson frequencies (~$2e/h$) in Ohms [Ω].

This derivation so indicates an electromagnetic cosmology based on string parameters as preceding the introduction of inertial mass in the quantum Big Bang and defines an intrinsic curvature within the higher dimensional (de Sitter) universe based on gravitational mass equivalents and their superconductive monopolar current flows.

A massless, but monopolically electromagnetic de Sitter universe would exhibit intrinsic curvature in gravitational mass equivalence in its property of closure under an encompassing static Schwarzschild metric and a Gravitational String-Constant $G_o=1/k_e$ as given in the Maxwellian finestructures in the string space and as $k_e=1/4\pi\varepsilon_o=120\pi c/4\pi=[30c]_{mod}=1/G_o$ in the finestructure unification condition of $G_o k_e=1$.

In other words, the Big Bang manifested inertial parameters and the matter content for a subsequent cosmic evolution in the transformation of gravitational 'curvature energy', here called gravita as precursor for inertia into inertial mass seedlings; both however described by the physics of black holes and the associated Schwarzschild metrics.

The Gravitational Finestructure so derives in replacing the Planck-Mass m_{planck} by a proto-nucleonic mass:
$m_c=\surd(hc/2\pi G_o).f(alpha)=f(alpha).m_{planck}$ and where f(alpha) = alpha^9.

The Gravitational finestructure, here named Omega, is further described in a five folded supersymmetry of the string hierarchies, the latter as indicated in pentagonal or five folded supersymmetry.
This pentagonal supersymmetry can be expressed in a number of ways, say in a one-to-one mapping of the Alpha finestructure constant as invariant X from the Euler Identity: $X+Y = XY = -1= i^2 = \exp(i\pi)$.

A Unification Polynomial: $(1-X)(X)(1+X)(2+X) = 1$ or $X^4+2X^3-X^2-2X+1 = 0$ is used to find the coupling ratios: $f(S)¦f(E)¦f(W)¦f(G) = \#¦\#^3¦\#^{18}¦\#^{54}$ from the proportionality
$\#¦\#^3¦\{[(\#^3)^2]\}^3¦(\{[(\#^3)^2]\}^3)^3$ = Cube root(Alpha):Alpha:Cuberoot(Omega):Omega.

The Unification polynomial then sets the ratios in the inversion properties under modular duality: (1)[Strong short]¦(X)[Electromagnetic long]¦(X^2)[Weak short]¦(X^3)[Gravitational long] as 1¦X¦X^2¦X^3 = (1-X)¦(X)¦(1+X)¦(2+X).

Unity 1 maps as (1-X) transforming as f(S) in the equality (1-X) = X^2; X maps as invariant from f(E) in the equality (X) = (X); X^2 maps as (1+X) transforming as f(W) in the equality (1+X) = 1/X; and X^3 maps as (2+X) transforming as f(G) in the equality
(2+X) = 1/X^2 = 1/(1-X).

The mathematical pentagonal supersymmetry from the above then indicates the physicalised T-duality of M-theory in the principle of mirror-symmetry and which manifests in the reflection properties of the heterotic string classes HO(32) and HE(64) as the 3rd and 5th string classes, respectively.
Defining f(S) = # = 1/f(G) and f(E) = $\#^2$.f(S) then describes a symmetry breaking between the 'strong S' f(S) interaction and the 'electromagnetic E' f(E) interaction under the unification couplings.

This couples under modular duality to f(S).f(G) = 1 = $\#^{55}$ in a factor $\#^{-53}$ = f(S)/f(G) = $\{f(S)\}^2$ of the 'broken' symmetry between long-range- and short-range interactions.
SEWG = 1 = Strong-Electromagnetic-Weak-Gravitational as the unified supersymmetric identity then decouples in the manifestation of string-classes in the de Broglie 'matter wave' epoch termed inflation and preceding the Big Bang, the latter manifesting at Weyl-Time as a string-transformed Planck-Time as the heterotic HE(64) class.

As SEWG indicates the Planck-String (class I, which is both open ended and closed), the first transformation becomes the suppression of the nuclear interactions sEwG and describing the self-dual monopole (string class IIB, which is loop-closed in Dirichlet brane attachment across dimensions say Kaluza-Klein R^5 to Minkowski R^4 or Membrane-Space R^{11} to String Space R^{10}).
The monopole class so 'unifies' E with G via the gravitational finestructure assuming not a Weylian fermionic nucleon, but the bosonic monopole from the k_eG_o=1 initial-boundary condition $G_o m_{Monopole}{}^2 = k_e e^2$ for $m_{Monopole}=e/G_o=k_e e=[30ec]_{mod}=m_{planck}.\sqrt{a}$.

The Planck-Monopole coupling so becomes $m_{planck}/m_{monopole}=m_{planck}/30[ec]_{mod}=1/\sqrt{\alpha}$ with f(S) = f(E)/$\#^2$ modulating f(G) = $\#^2$/f(E)=1/# $\leftrightarrow$ f(G){f(S)/f(G)} = # in the symmetry breaking f(S)/f(G) = 1/$\#^{53}$ between short (nuclear asymptotic) and long (inverse square).
The short-range coupling becomes f(S)/f(W)=#/$\#^{18}$=1/$\#^{17}$=Cube root(Alpha)/Alpha^6 and the long-range coupling is Alpha/Omega=1/Alpha^{17}=$\#^3/\#^{54}$=1/$\#^{51}$=1/$(\#^{17})^3$.

The strong nuclear interaction coupling parameter so becomes about 0.2 as the cube root of alpha and as measured in the standard model of particle physics in the form of an energy dependent 'running coupling constant' and which takes a value of α_Z = 0.1184 at the energy level of the Z_o weakon at about 92 GeV.

The monopole quasimass $[ec]_{mod}$ describes a monopolar source current ef from the unification identity $1/e^*f_{ps}$ = h = E^*/f_{ps} as a fine structure for Planck's constant h, manifesting for a displacement λ=c/f. This is the GUT unification energy of the Dirac Monopole at precisely [c^3] eV or 2.7x10^{16} GeV and the upper limit for the Cosmic Ray spectra then as [30c^3]=8.1x10^{17} GeV*as the physical manifestation for the string classes: I, IIB, HO(32), IIA and HE(64) in order of modular duality transmutation.

The transformation of the Monopole string into the XL-Boson string decouples Gravity from sEwG in sEw.G in the heterotic superstring class HO(32). As this heterotic class is modular dual to the other heterotic class HE(64), it is here, that the proto nucleon mass is defined in the modular duality of the heterosis in:
Omega=Alpha^{18}=$2\pi G_o m_c^2/hc=m_c/m_{planck}^2$.

The HO(32) string bifurcates into a quarkian X-part and a leptonic L-part, so rendering the bosonic scalar spin as fermionic half spin in the continuation of the 'breaking' of the supersymmetry of the Planckian unification. Its heterosis with the Weyl-string then decouples the strong interaction at Weyl-Time for a Weyl-Mass m_W, meaning at the time-instanton of the end of inflation or the Big Bang in sEw.G becoming s.Ew.G.

The X-Boson then transforms into a fermionic protonucleon triquark-component (of energy ~ 10^{-27} kg or 560 MeV) and the L-Boson transforms into the proto-muon of energy about 111 MeV.
The last 'electroweak' decoupling then occurs at the Fermi-Expectation Energy about 1/365 seconds after the Big Bang at a temperature of about 3.4×10^{15} K and at a 'Higgs Boson' energy of about 298 GeV.

A Bosonic decoupling preceded the electroweak decoupling about 2 nanoseconds into the cosmogenesis at the Weyl-temperature of so $T_{weyl} = T_{max} = E_{weyl}/k_B=E_{ps}/k_B=1.4\times10^{20}$ K as the maximum Black Hole temperature maximized in the Hawking MT modulus and the Hawking-Gibbons formulation:
$M_{critical}T_{min} = ½m_{planck}T_{planck} = (hc/2\pi G_o)(c^2/2k_B) = hc^3/4\pi k_B G_o$ for $T_{min} = 1.4\times10^{-29}$ K and Boltzmann constant k_B.
The Hawking Radiation formula results in the scaling of the Hawking MT modulus by the factor of the 'Unified Field' spanning a displacement scale of 8π radians or 1440° in the displacement of $4\lambda_{ps}$.

The XL-Boson mass is given in the quark-component: $m_X = \#^3 m_W/[ec]$
= Alpha.$m_W/m_{planck}=\#^3\{m_W/m_{planck}\}$~$1.9\times10^{15}$ GeV; and the lepton-component:
m_L = Omega.$[ec]/\#^2=\#^{52}[ec/m_W]$ ~ 111 MeV.
It is this lepton component which necessitates the existence of the muon (and the tauon and their neutrino partners as constituents of the weak interaction gauge bosons) as a 'heavy electron', as the quantum geometry defines the muon mass in a decoupling of the L1 energy level given in a diquark hierarchy and based on a quantum geometry of the quantum relativity.

The definition of quantum consciousness is so obtained in the definition of magnetopolar charge $e^*=1/E_{weyl}=1/E_{ps}$ in the units of the Star Coulomb being the measurement of inverse energy as the inversion of the unit for energy in the Joule as $[J=kgm^2/s^2]^*=[1/C^*]$. For the parameters of the electron of mass $m_e=k_e e^2/R_e c^2=h\alpha/2\pi cR_e$ and classical displacement $R_e=k_e e^2/m_e c^2$/and the Compton constant $m_e R_e=k_e e^2/c^2=h\alpha/2\pi c=\alpha.L_{planck}.m_{planck}=L_{ec}.m_{ec}$ for monopolar distribution of electron masses and as a consequence of the Planck length oscillation as a minimum spacetime configuration causative for the Quantum Big Bang. The subscript ‘ec’ denotes the Grand-Unification monopole mass as the second string class where mass $m=E/c^2=hf/c^2=h/lc=h/(ec/c^2)=hc/e=[Action].c/e=[e^2]c/e=[ec]_{mod}$ of about 4.818×10^{-11} kg* as the Dirac monopole of the GUT energy in electronvolt as $[ec]_{mod}.c^2=[c^3]$ eV*.

The Compton constant defines the inverse proportionality between the ‘size’ of the electron from point like at the wormhole radius at 10^{-22} m* to its maximized extent at $R_e=2.777..\times10^{-15}$ m* as a function of its mass in $m_{ec}.L_{ec}=h/2\pi c$, relative to $m_e R_e=h\alpha/2\pi c$, with $L_{ec}=R_e$ being the characteristic displacement scale for the weak nuclear interaction as the magnetic asymptotic confinement scale of the gluon-quark interactions, emerging in a kernel-inner mesonic ring-outer leptonic ring quantum geometry for the subatomic quantum mechanics of the elementary particles of the Standard Model. For the minimized classical Weyl-size of the electron at a wavelength of 10^{-22} m*, the Compton constant defines an effective mass of $m_{ec}=h/2\pi c(R_{weyl})=h/c(10^{-22})=2.22\times10^{-20}$ kg* for $L_{ec}=R_{weyl}$, which is the Weyl wormhole mass $m_{weyl}=m_{ps}=E_{ps}/c^2$.

The Heisenberg uncertainty principle relating energy with time and displacement with momentum in the expression $\Delta E.\Delta t = \Delta x.\Delta p \geq h/4\pi$ applied to the quantum mechanical scale of de Broglie wave matter $\lambda_{dB} = h/mv$ and the Compton mass-photon interaction $\Delta x=r_{compton}=h/2\pi cm$ shows a natural limit for the measurement of position in $\Delta p = \Delta mv \geq h/4\pi\Delta x = ½mc$.
When Δp exceeds mc , then ΔE exceeds mc in the Energy-Momentum relation $E^2=(pc)^2+(mc^2)^2$ and we can apply this natural limitation on measurement to the position of the electrostatic electron mass in a variable classical electron radius as $r_{ec}=\alpha h/2\pi cm=\alpha r_{compton}=\{\mu_o e^2c/2h\}.\{h/2\pi cm_{ec}\} = \mu_o e^2/4\pi m_{ec}$ and rendering the Compton mass-photon interaction modified in the electromagnetic fine structure constant α to relate the inverse proportionality between the electron's rest mass to its spacial extent in: m_eR_e= Compton constant$=\alpha h/2\pi c=l_{planck}.\alpha.m_{planck}=m_{ec}r_{ec}$
The Compton constant ensures Lorentz invariance across all reference frames in cancelling the length contraction with the relativistic mass increase in the product of the proper length l_o and the proper rest mass m_o as $l_o.m_o=l_o\gamma.m_o/\gamma$ in special relativity (SR) in the self-relative reference frame of the monopolar electron and with $\gamma=1/\sqrt{(1-v^2/c^2)}$.

Physicalized Consciousness is a monopolar source current $I_{monopolar}$, acting on a spacetime volumar coupled to the time differential of frequency as defined by the spacetime awareness enclosed in the volumar. The source monopolar current is equivalent to the mass of the interaction.

For the resonance energy state, the spacetime awareness df/dt is $\{df/dt\}|_{max}=f_{ps}/f_{ss}=f_{ps}^2=9\times10^{60}$ frequency eigenstates, defining the volume of the Restmass-Photon RMP as the 'dark matter' particle of physicalized consciousness

$V_{rmp}=e^*/\{df/dt\}|_{max}=2R_ec^2/\{df/dt\}|_{max}=500/9\times10^{60}=5.555...\times10^{-59}$ [m³]* and calculates as $R_{rmp}= \sqrt[3]{\{5.555..\times10^{-59}\}/2\pi^2\}}=1.933..\times10^{-21}$ m* for a toroidal hyper-surface volumar ($V^4=½\pi^2R^4$ for $dV^4/dR=2\pi^2R^3=(2\pi R).(\pi R^2)$ for a 3-dimensional Horn Torus) and calculates as $R_{rmp}= \sqrt[3]{\{5.555..\times10^{-59}\}/4\pi/3\}}=9.109...\times10^{-21}$ m*

The resonance state with the source energy quantum{proportionality constant}.$V_{weyl}.\{df/dt\}_{weyl}=E_{weyl}.=hf_{weyl}=m_{weyl}c^2=k_BT_{weyl}$, ={mass/displacement}. $V_{weyl}.\{df/dt\}_{weyl}$={ec/displacement}}. $V_{weyl}.\{df/dt\}_{weyl}=\{I_{monopole}\}$. $V_{weyl}.\{df/dt\}_{weyl}$ = {monopolar mass current = $E_{weyl} = hf_{weyl} = m_{weyl}c^2= k_BT_{weyl}$
Logos Mathimatia or the universal intelligence then defines the parameter df/dt as the unit of spacetime awareness, which if multiplied by the wormhole volumar of the Weyl string V_{weyl} of the Quantum Big Bang will define the source energy quantum from first principles as {proportionality constant}.$V_{weyl}.\{df/dt\}_{weyl}=E_{weyl}=hf_{weyl}=m_{weyl}c^2=k_BT_{weyl}$, in the mathematical formulations for the energy transformations in electromagnetic radiation (Planck) and mass (Einstein) and temperature as kinetic energy (Stefan-Boltzmann) respectively.

The proportionality constant in units mass/displacement [kg/m] describes Maxwell's displacement current in the non-inertial reference of the Stoney units of the transformation of the Planck string into the Stoney monopole string.

Dirac's monopole becomes the singularity of the creation event in the Quantum Big Bang Singularity or QBBS as a universal mirror connecting nowhere in notime as a one-dimensional Dirac superstring dividing the timespace of abstract mathematical, algorithmic, and logical definition to a spacetime rediscovering the potential of the timespace in the flow of time and the experience of spacial separation. This serves the universal purpose to manifest the potential energy configurations of physicalized consciousness in the activity and dynamical interactions of physical information carriers.
The increase of physicalized consciousness in the quantum acceleration potential df/dt in the cosmology enhances the self-awareness of the physicalized information processors in the potential transformation of restmass quanta defined in the low energy part of the supermembrane $E_{ps}E_{ss}$. As the restmass quanta m_{ss} are always coupled to the Unified Field of Quantum Relativity (UFoQR) and the agency of the Restmass-Photon RMP as a dark matter agent for the UFoQR; the definition for physicalized consciousness as the angular radial independent quantum acceleration acting upon any volumar of space ensures the dynamic evolvement of volumar spacetime in the experience of the flow of time common to both the experienced spacetime and its generating timespace. In timespace the absence of duration as a unit count is replaced in the ordering principle for events, independent on any duration count between the occurrence of the events.
The perception of spacetime becomes however a function of individuated physicalized consciousness in its scope of resonating with the source energy parameters in the form of the time differential for eigen-frequency specifying the 'spacial awareness' as a eigen- or self-state to harmonize or resonate with the timespace definitions made manifest in spacetime.

The inertial frame of self-reference then defines the acceleration of a magnetic charge generating monopolar electromagnetic radiation (EMMR) as a form of the original Electromagnetic Monopolar Interaction EMMI light path of the creation event and where the parameter of a magnetic point charge as the mass of a magnetic monopole becomes the quantum for the RMP as the dark matter agent and as a fifth fundamental interaction in the UFoQR in mirror capacity to the electropolar charge of the electron.

And God said

$$\nabla \cdot \vec{E} = \frac{\rho_e}{\varepsilon_0}$$

$$\nabla \cdot \vec{B} = \mu_o \rho_m$$

$$\nabla \times \vec{E} = -\frac{\partial \vec{B}}{\partial t} - \mu_o J_m$$

$$\nabla \times \vec{B} = \mu_0 \vec{J} + \frac{1}{c^2}\frac{\partial \vec{E}}{\partial t}$$

and there was light.

Then Maxwell said

For Divergence: $\oiiint \nabla.(E,B)dV = \text{Flux } \Phi_{e,m} = \oiint (E,B).dA$

For Curl: $\oiint \nabla x(E,B).dA = \text{Flux } \Phi_{e,m} = \oint (E,B).dL$

$$\oiint \vec{\mathbf{E}} \cdot d\vec{\mathbf{A}} = \frac{Q}{\epsilon_0} = \int_V \frac{\rho_e}{\varepsilon_o} dV$$

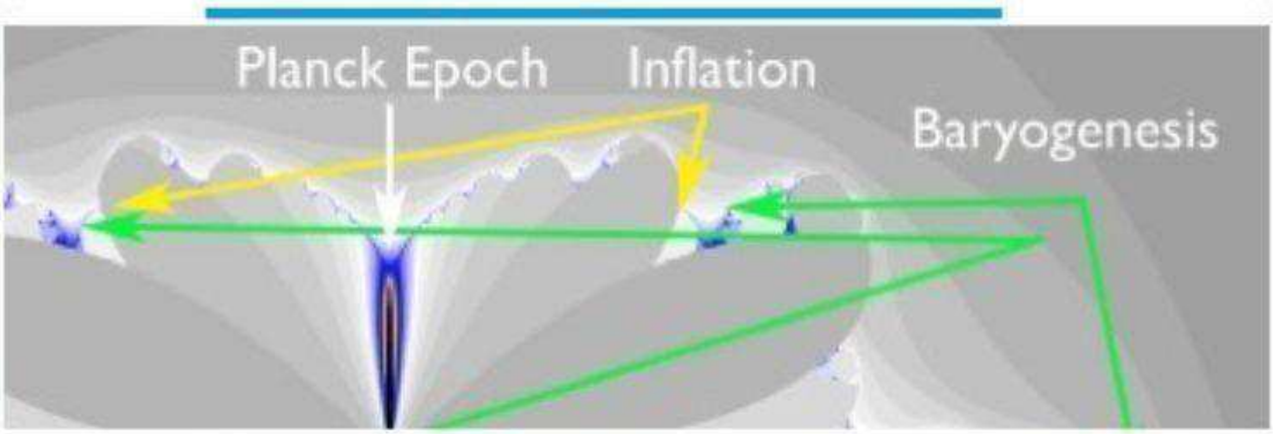
$$\oiint \vec{\mathbf{B}} \cdot d\vec{\mathbf{A}} = 0 = \int_V \mu_o \rho_m dV$$

$$\oint \vec{\mathbf{B}} \cdot d\vec{\mathbf{l}} = \mu_0 i_C + \mu_0 \epsilon_0 \frac{d\Phi_E}{dt}$$

displacement

$$\oint \vec{\mathbf{E}} \cdot d\vec{\mathbf{l}} = -\frac{d\Phi_B}{dt}$$

Lorentz Force: $\vec{F} = q_e\{\vec{E} + \vec{v}x\vec{B}\} + q_m\{\vec{B} - \vec{v}x\vec{E}/c^2\}$



$$E^* = E_{ps} = hf_{ps} = hc/\lambda_{ps} = m_{ps}c^2$$

$$= (m_e/2e).\sqrt{[2\pi G_o/\alpha hc]} = \{m_e/m_{Planck}\}/\{2e\sqrt{\alpha}\}$$

$$= G_o m_e/2e^2 = 1/2R_ec^2 = 1/e^*$$

Time began from nowhere in notime at the now time of the source energy becoming conscious of itself and the creation of somewhere from sometime became the logical consequence of the birthing of time as a spacetime parameter and function to enable the original consciousness energy experience itself as its own parts or 'children of descendancy' in the sharing of the universal or cosmic self-consciousness. The function and primary focus of spacetime then is to manifest a mirror symmetry between the ancestral original creator source consciousness and the descendent created source consciousness known as spacetime awareness.

The source energy is known and labeled in many ways and including the names of 'God' and the great 'I AM' and gods, as 'All That Is' and as deifications of mythos and of history in the libraries and records of the history of the worlds. The stories of creation and of the gods so share particular similarities and differ in other aspects as a function of culture and custom and regionality, relative to the scribes and record keepers indigenous to an area, where the records are being composed and collected.

The creative source is known in the Mathimatia of the Universal Logos-Sophia as the universal intelligence or source energy manifesting itself from a timeless and space-independent realm labeled as timespace in spacetimes interwoven in the physical parameters of spacial extent and a timed duration between events. the primary and spacetime-aware. To relate the nospace and the notime with space and time a modular inversion and mirror duality becomes integrated in the creation of a protoversal seed with the potential to reflect and mirror its creation modular duality in the inversion properties of quantization of the micro-self-states and the macro-self-states of existence in the form of a supermembrane consisting of two interwoven, albeit reciprocated parts. The high energy and micro-quantum part is known as Abba as the name of the creator-creation sourcesink and the macro-quantum part is known as Baab as the name of the creation-creator sinksource in a generalised White-Hole-Black-Hole or Yang-Yin or DNA-RNA or chicken-egg or male-female or phallus-yoni cosmology.

The Time fractal of the Genesis Code in Seven Days of Creation

The fractal of the Genesis code is the number 7 as a count of units of time.

A full day, as a circle of time counted as 360 degrees, can be divided into two halves of 180 degrees. The first half of the circle can be defined as lightness from a sunrise or dawn at 0 degrees to sunset at 180 degrees. The second half of the circle from 180 degrees to 360 degrees can then be defined as evening to morning of the full day. The period of time from sunrise to noon or midday to sunset of the 180 degrees is then halved into two 90 degree periods defining the upper half of the full circle as the Light of a Day and comprising 12 hours as 180 degrees.

The lower half of the circle of a full day then can be defined as the Darkness of a Night and comprising 12 hours as 180 degrees. The four 90 degree sectors of the circle can then be said to be four watches of 6 hours each and where a watch of 6 hours completes 90 degrees of the circle of 360 degrees.

One hour of the 24 hours of the complete circle therefore is defined as 360/24=15 degrees.

As one hour in a day represents 15 degrees of the full circle of 360 degrees, one day in 360 days defines a circle- or degree year as 360 days. Proportionally then, one hour in a day of 24 hours is the same as 15 days within a degree year of 360 days.

This defines a 'shortened time' as a count in hours from a 'standard time' as a count in days in 7x24=168 hours being 7 full days.

The original division of the circle of 360 degrees into 2x180 degrees becomes redefined as 3½ days of 84 hours of daytime and 3½ days of 84 hours of nighttime.

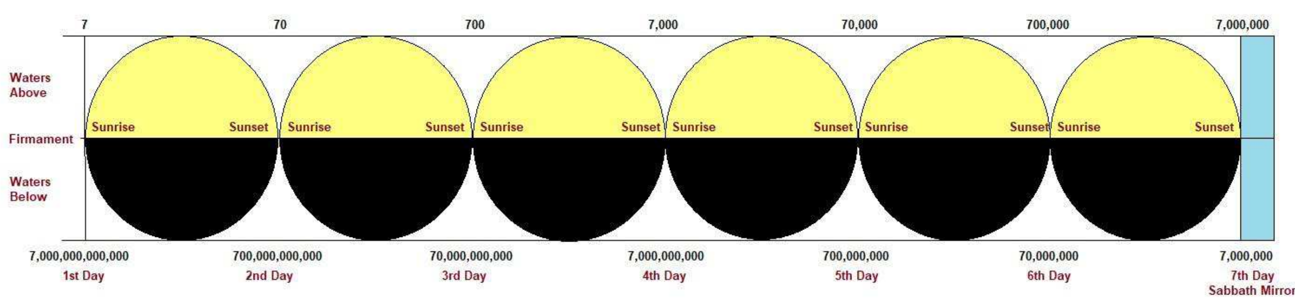
The seven days of creation so are 7x12=84 hours of daytime from morning to evening, followed by 7x12=84 hours of nighttime from sunset to sunrise.

The fractal of the Genesis-Star-Genetic Code is defined by 2x7x12=14x12=168 hours as: 7+70+700+7,000+70,000+700,000+7,000,000+70,000,000+700,000,000+7,000,000,000+70,000,000,000+700,000,000,000+7,000,000,000,000=7,777,777,777,777 full days of creation in one week of consecutive daytime and 1 week of consecutive nighttime.

There are so six periods of daytime from 7-70 and 70-700 and 700-7,000 and 7,000-70,000 and 70,000-700,000 and 700,000-7,000,000 followed by a mirror of half-time and 7,000,000-70,000,000 and 70,000,000-700,000,000 and 700,000,000-7,000,000,000 and 7,000,000,000-70,000,000,000 and 70,000,000,000-700,000,000,000 and 700,000,000,000-7,000,000,000,000

The alpha-sunrise as the morning of the 1st day of creation are the 7 days of the beginning and counting from left to right or clockwise with the omega-sunset of the 6th day being the 7,000,000 days at the 'Halftime Logos Mirror' of the daytime and mirroring the 6 days of daytimes in the 6 days of night times.

The 6th night of the 7,000,000 days so continues as the 6th night to the 70,000,000 days to begin the nighttime of the 5th full day and following the clockwise motion of the circle in the nighttime from 180 degrees to the 360 degrees of the 7,000,000,000,000 days to reset the 360 degrees in the 0th degree of the sunrise of the 1st day ending the nighttime of the 1st full day and completing the circle of the star-genetic time.



The 1st day of star-genetic creation are 7 days and 7 Trillion nights

as 7 days and 7,000,000,000,000/360=19.444… Billion Degree-Years 'DY' with 7 Trillion/365.2425=19.165 Billion Civil Years 'CY'

{The Age of the universe as a multiverse, subject to quantum tunneling can be calculated as 19.12 Billion years in an cosmology of 12-dimensional supermembrane duality}

The 2nd day of star-genetic creation are 70 days and 700 Billion nights

as 70 days and 700,000,000,000/360=1.9444… Billion 'DY' with 700 Billion/365.2425=1.916… Billion 'CY'

{A 'electromagnetic higher dimensional universal age' of 19.12 Billion years defines an 'intersection' (return of the electromagnetic light path) interval of 2.24 Billion years for a lower dimensional universal age of 19.12-2x2.24=14.64 Billion years coincident with an age of planet Earth of 2.24 billion years for the onset of prokaryotic unicellular lifeforms transmutating into eukaryotic multicellular lifeforms}

The 3rd day of star-genetic creation are 700 days and 70 Billion nights

as 700/360=1.944… 'DY' with 700/365.2425=1.916… 'CY' and 70,000,000,000/360=194.444… Million 'DY' with 70 Billion/365.2425=191.653… Million 'CY'

{200 Million years is a time marker for the evolution of the first mammals and diversification of dinosaurs in the transition from the Triassic into the Jurassic era of the Mesozoic time period. The time required for the local star system of Rahsol to complete a cycle of rotation about the center of the Milky Way galaxy takes about 236 Million years}

The 4th day of star-genetic creation are 7,000 days and 7 Billion nights

as 7,000/360=19.444... 'DY' with 7,000/365.2425=19.165…'CY' and 7,000,000,000/360=19.444… Million 'DY' with 7 Billion/365.2425=19.165… Million 'CY'

{20 Million years ago in the evolution of life on planet Earth represents a nexus point towards the end of the Miocene era and initiates the evolution of apes (Hominoidea) from an earlier primate genomatrix (Old World Monkeys)}

The 5th day of star-genetic creation are 70,000 days and 700,000 Million nights as 70,000/360=194.444…'DY' with 70,000/365.2425=191.653 'CY' and 700,000,000/360=1.944… Million 'DY' with 700 Million/365.2425=1.916… Million 'CY'

{The Hominoidea-Hominidae-Homininae-Hominini-Hominina-Homo taxonomy of human evolution had passed the Australopithecine and Homo Habilis nexus marker to emerge the homo erectus or 'upright man' as archaic forerunner of homo sapiens 2 Million years ago}

The 6th day of star-genetic creation are 700,000 days and 70,000 Million nights

as 700,000/360=1944.444…'DY' with 700,000/365.2425=1916.534… 'CY' and 70,000,000/360=194,444.444… 'DY' with 70 Million/365.2425=191,653… Million 'CY'

{200,000 years ago characterized the appearance of Homo Sapiens or 'wise man' as evolved from Homo Sapiens-(Devosonian, Homo Neanderthalensis, Homo Heidelbergensis) in the form of 'Anatomically Modern Human' AMH (Cro-Magnon Man) in the Late/Upper Pleistocene period of the Quaternary era of geology}

The 7th day of star-genetic creation are 7,000,000 days and 7,000,000 nights

as 7,000,000/360=19,444.444…'DY' with 7 Million/365.2425=19,165.349… 'CY' and 7,000,000/360=19,444.444… 'DY' with 7 Million/365.2425=19,165.349… Million 'CY'

{The 'last ice age' and period of glaciation (Younger Dryas) in the Holocene epoch 12,000 years ago is defined within the last precessional cycle of precession, defined by a simple day-count calendar of 9,360,000=65x144,000 day-kin of the Maya from [-52.0.0.0.0=4Ahau 3Kayab as 01Mar23,615 BCG (Gregorian proleptic)/27Aug23,615 BCJ (Julian proleptic)= 25Sivan-19,854] to a Midpoint of a 65 Baktun Precessional Cycle defining the glaciation for the dates [-20.10.0.0.0 =4Ahau 13Muan as 27Jul10,802 BCG/18Oct10,802 BCJ=16Elul-7041] to [13.0.0.0.0= 4Ahau 3Kankin as 21Dec2012 ADG/08Dec2012 ADJ=8Teveth5773] as a 9,360,000/360=26,000 'DY' with a 9,360,000/365.2425=25,626.809… 'CY' count of years for the completion of the fifth of five such precessional cycles of time.}

Dedicated to the supermembrane AbbABaaB for the reconfiguration of an old world into a new world!

Queanbeyan, New-South-Wales; Australia; July 4th, 2020