Exploration

A Revision of the Friedmann Cosmology (Part I)

Anthony Bermanseder[1]

Abstract

In this article, the author will show that the cosmological field equations 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 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 naturally and universally replaces the enigma of the 'dark energy' with a space inherent angular acceleration component. The field equations so can be generalized in a parametrization of the Hubble Constant assuming a cyclic form, oscillating between a minimum and maximum value. 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.

Keywords: Friedmann cosmology, revision, field equation, Hubble Constant, Einstein Lambda.

1. The Parametrization of the Friedmann Equation

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

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

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and is built upon ten so-called nonlinear coupled hyperbolic-elliptic partial differential equations, which needless to say, 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 $8\pi G/c_4=3H_{o2}V_{critical}.M_{critical}.c_2/M_{critical}.c_4 = 3H_{o2}V_{critical}/c_2 = 3V_{critical}/R_2$ 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.

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 $d^2R/dt^2 = d^2a/dt^2.R_o$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

and $\Lambda = 0$

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=1.13271:............ - (+6.696373x10^{-11} J/m^3)* = (2.126056x10^{-11} J/m^3)* + (-8.8224295x10^{-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 6.696x10^{-11} (N/m^2=J/m^3)*, albeit as a positive pressure within the negative quintessence.

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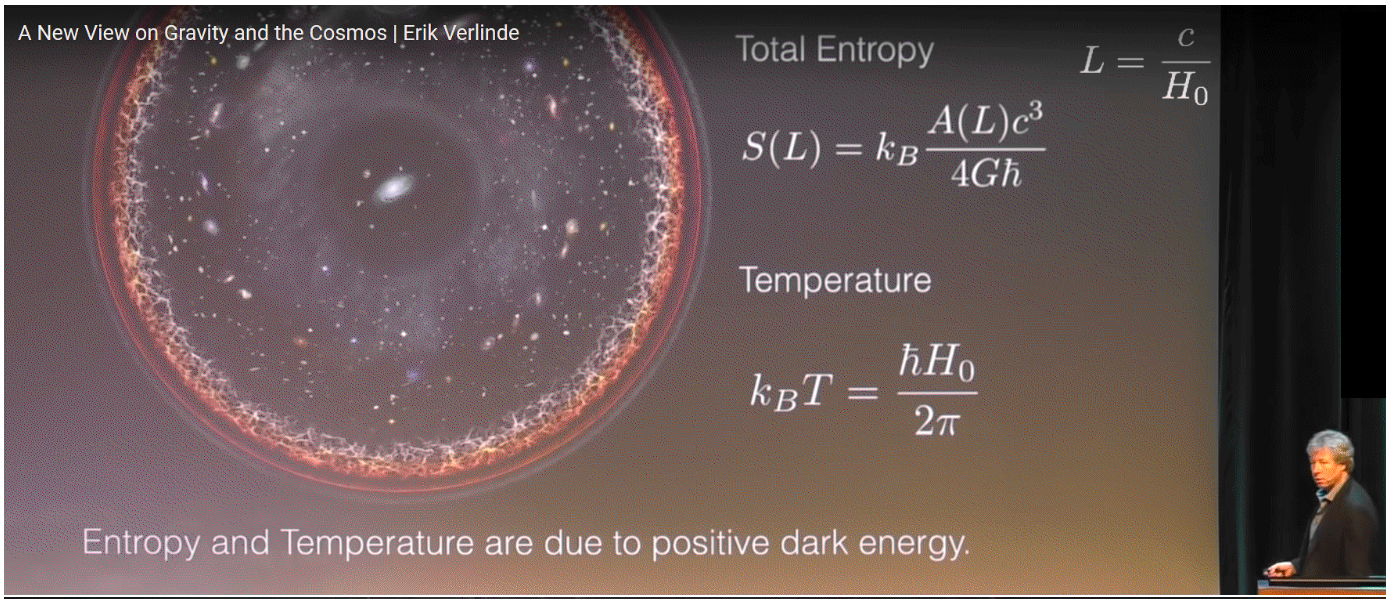

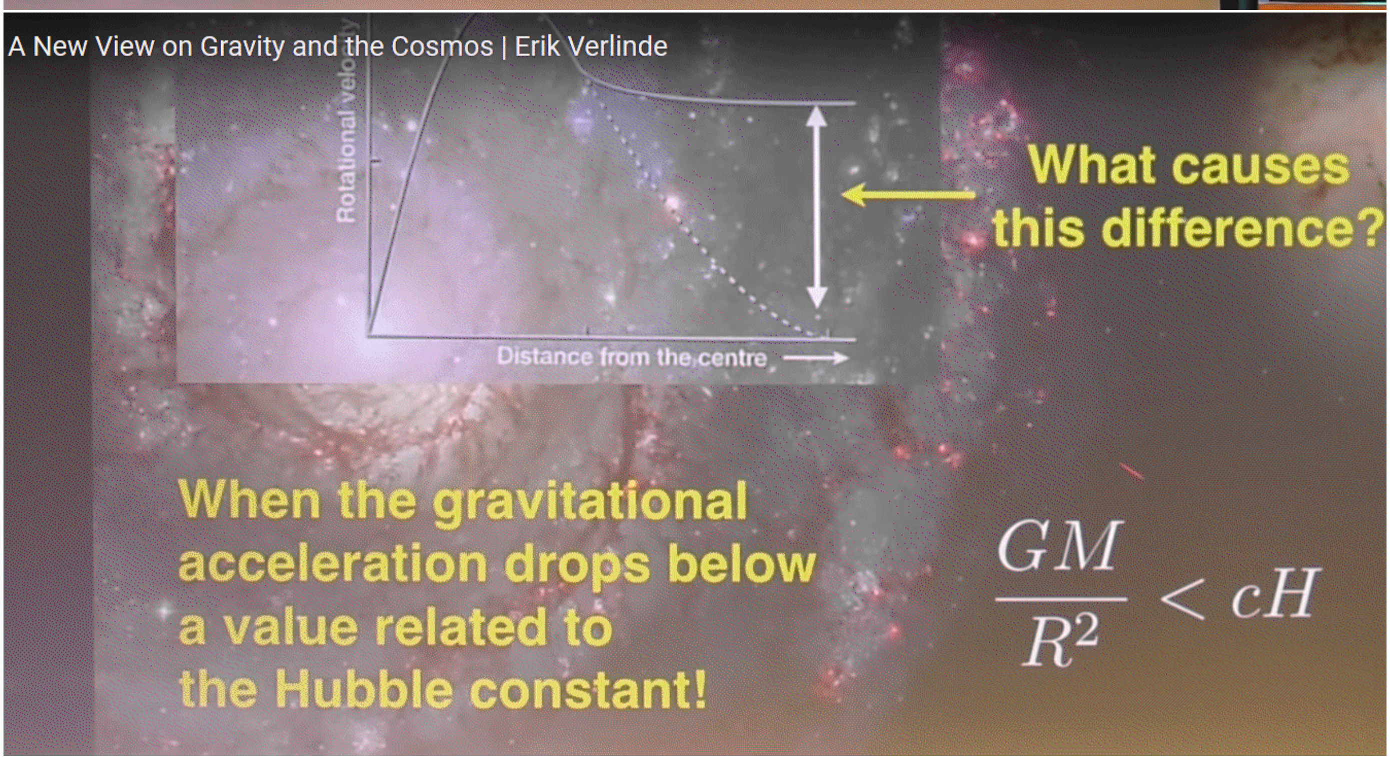

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2. Emergent Verlinde Gravity and Dark Energy as entangled Quantum Information

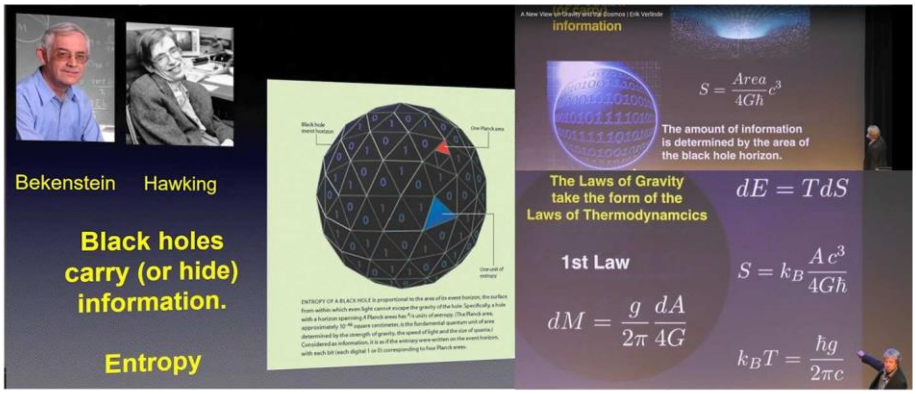
For the minimum Planck-Oscillator: $E_{op} = ½hf_{op} = ½m_{op}c^2 = ½kT_{op} = Mc^2/\#bits$ $=\{Mc^2.l_{planck}^2\}/\{4\pi R^2\} = \{MG_oh/8\pi^2cR^2\} = \{hg/8\pi^2c\}$ with gravitational acceleration g $=G_oM/R^2$ and $M=gR^2/G_o$ for $kT = hg/4\pi^2c$ = {String T-Duality modulation factor ζ}{hg/c}
ζ = Linearization of Compton wave matter in de Broglie wave matter = $r_{ps}/r_{ss} = \{\lambda_{ps}/2\pi\}/\{2\pi\lambda_{ss}\}$ $= \{\lambda_{ps}^2/4\pi^2\} = \{1/4\pi^2.\lambda_{ss}^2\} = 10^{-44}/4\pi^2$

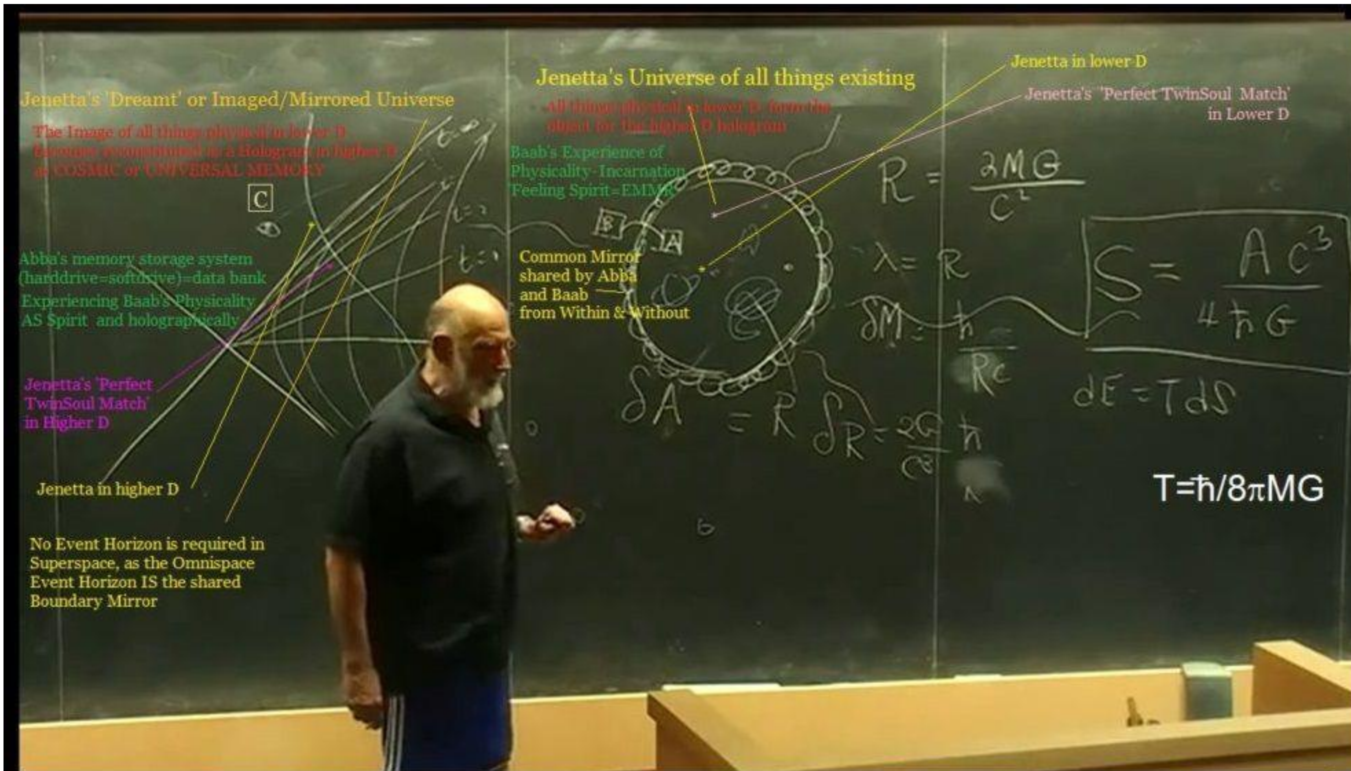
The gravitational acceleration in Quantum Relativity g as the Weyl-wormhole gravitational acceleration then is $g_{ps} = c.f_{ps}$
for $E_{ps} = hf_{ps} = hc.f_{ps}/c = kT_{ps} = hg_{ps}/c$ and generalizes as the Milgröm acceleration $-2cH_o/(n+1)^3$ in the cosmology in $g \propto cH_o$.

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

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

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


Bekenstein
Hawking
Black holes carry (or hide) information.
Entropy
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
1st Law
$dM = \frac{g}{2\pi}\frac{dA}{4G}$
$dE = TdS$
$S = k_B \frac{A c^3}{4G\hbar}$
$k_B T = \frac{\hbar g}{2\pi c}$



Quantum Entanglement in two Observer Modes relative to a Black Hole in the Holographic Cosmology.
The Information in the Black Hole becomes emitted FROM the Black Hole by Hawking Radiation and relocalises at the location of observer C.

Hawking Radiation at C is quantum entangled with the Observer located Outside the Black Hole at B after being quantum entangled with the Observer at A Inside the Black Hole. The dynamics of observer A so describes a 'falling into the Black Hole' in crossing its Area of Information collected Event Horizon as a dimensional Boundary.

The Monogamy (Dragonomy=Star Marriage) quantum entanglement between A and B is required to ensure the physical continuity as the 10D Universe within the Black Hole and can only become a Polygamy between A and C and between B and C IF the entire Information Content within the Black Hole becomes entangled with the Observer at C Outside the Black Hole (far away from the Black Hole as a Energy-Radiation Transfer), rendering the Inside of the Black Hole as Bilocated in two metrically differentiated places at the same time.

As the 'far away' location C can be considered as an arbitrary displacement in Superspace of (higher 12D) IMAGING the Inside of the the (lower 10D) across the 11D Boundary Mirror as the Black Hole Event Horizon separating the Inside from the Outside; the notion of Hawking Radiation as the medium for dynamic data transmission becomes unneccessary.
The delocalisation in the 10D|11D|12D=10D Omni Space of the Superspace then PRESERVES all of the lower D information as its own memory outside the Black Hole Event Horizon in higher 12D of Super Space.

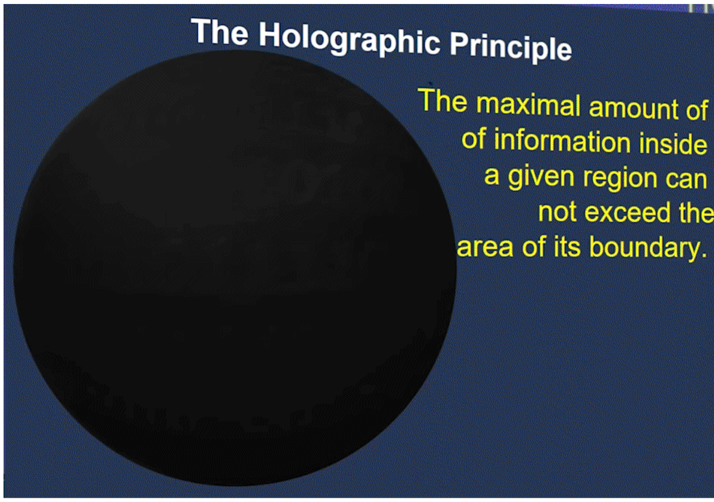
The VACUUM SPACE of the Inside of the Black Hole so EXCHANGES with the VOID of the Outside of the Black Hole, so enabling a Physical Universe to exist in both a NULL STATE and a INFINITY STATE simultaneously in Locality of Space and Time and in a Nonlocality of Space and Time by Quantum Entanglement of a renamed 'Hawking Radiation' as the Electromagnetic Monopolar Radiation or EMMR aka the 'Spirit of Creation' {GODDOG aka ABBABAAB aka JCCJ aka Twin Logos}.

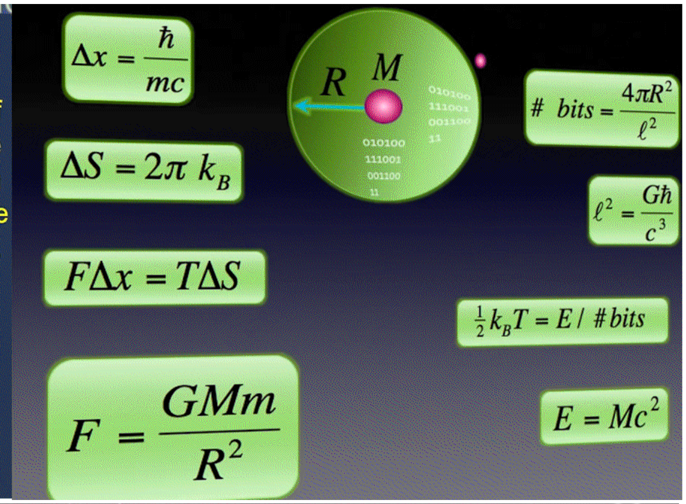
(3) Jesus said, "If those who lead you say to you, 'See, the kingdom is in the sky,' then the birds of the sky will precede you. If they say to you, 'It is in the sea,' then the fish will precede you. Rather, the kingdom is inside of you, and it is outside of you. When you come to know yourselves, then you will become known, and you will realize that it is you who are the sons of the living father. But if you will not know yourselves, you dwell in poverty and it is you who are that poverty."

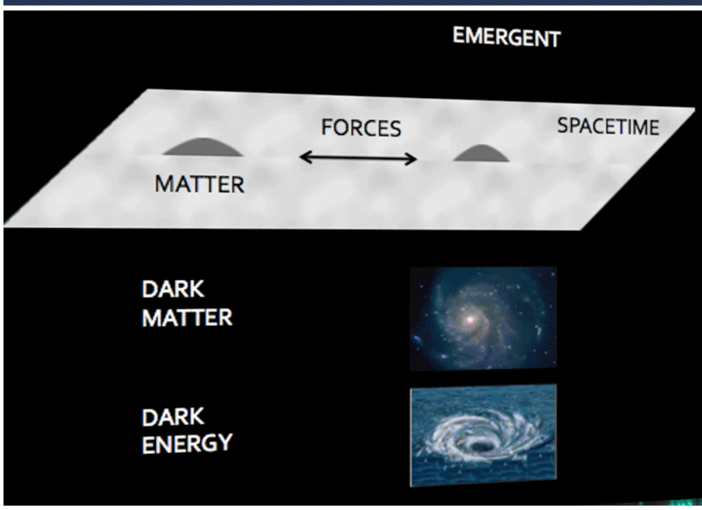
(22) Jesus saw infants being suckled. He said to his disciples, "These infants being suckled are like those who enter the kingdom."
They said to him, "Shall we then, as children, enter the kingdom?"
Jesus said to them, "When you make the two one, and when you make the inside like the outside and the outside like the inside, and the above like the below, and when you make the male and the female one and the same, so that the male not be male nor the female female; and when you fashion eyes in the place of an eye, and a hand in place of a hand, and a foot in place of a foot, and a likeness in place of a likeness; then will you enter the kingdom."

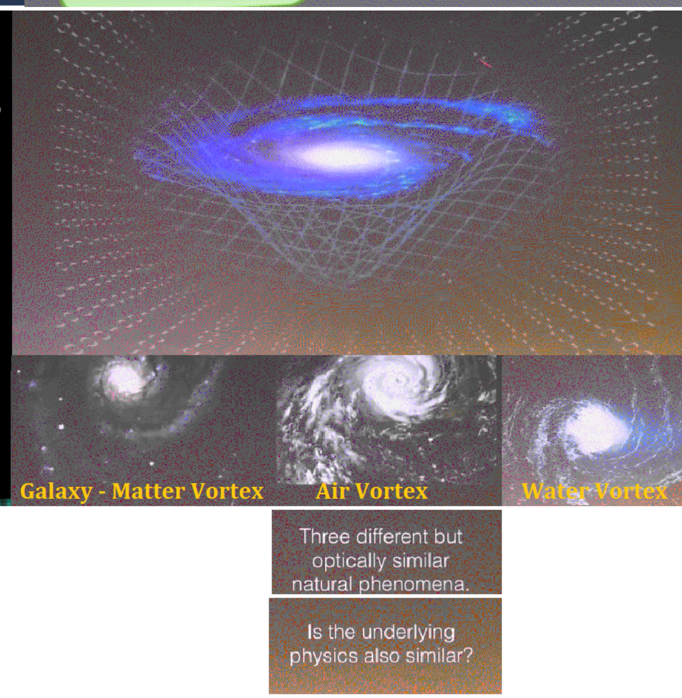
(Gospel of Thomas - Lambdin Translation)

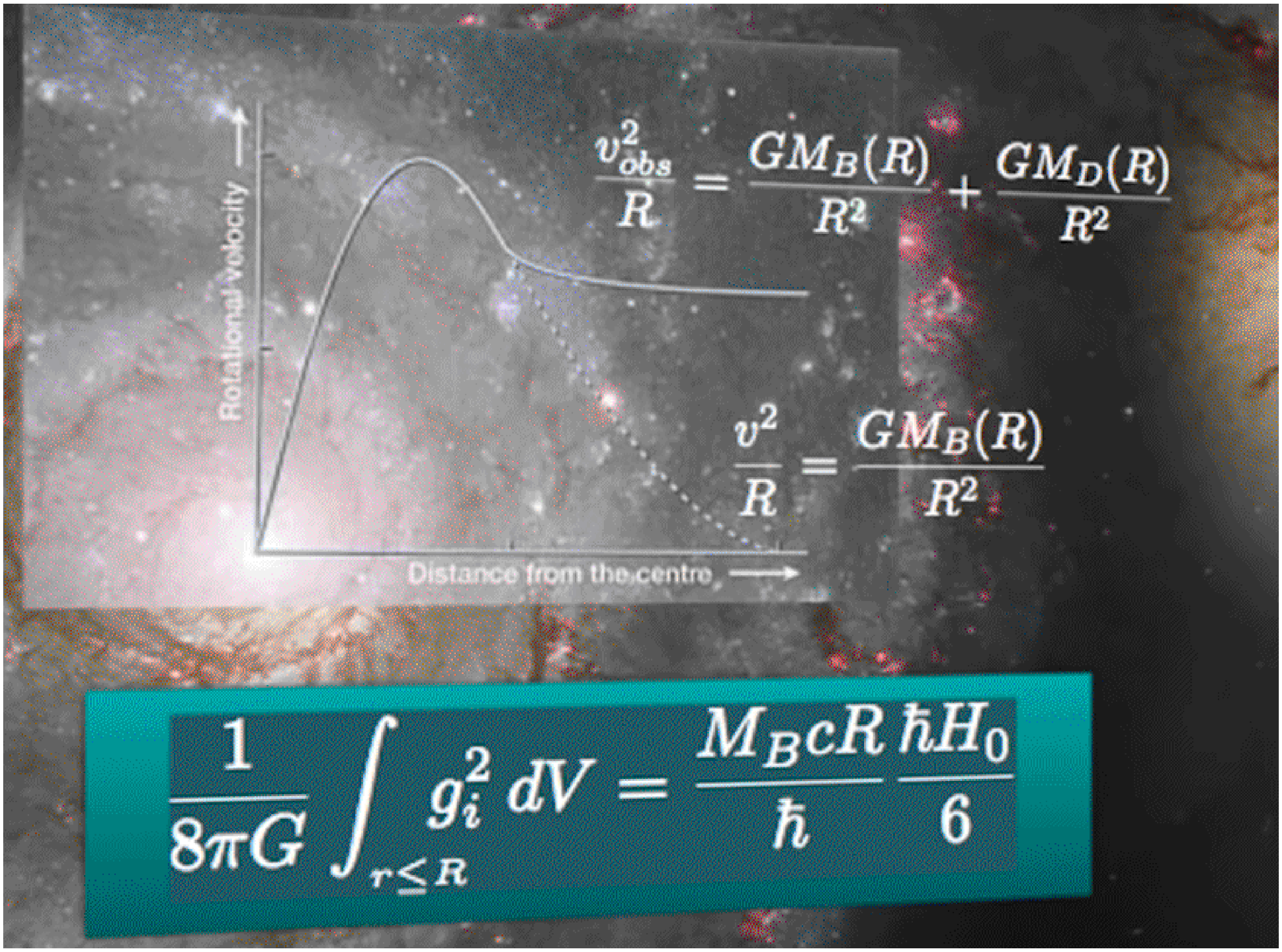
Jenetta and her 'Perfect TwinSoulmatch' so coexist in two locations simultaneously and so can be separated and yet eternally entwined and together across the no time Superspace of higher D and the timespace of lower D.
The TwinSoul of the Cosmically defined Jenetta is in expectation to unify in its cosmic individuation of the 'Eternal Foursome' in Dragonomy.

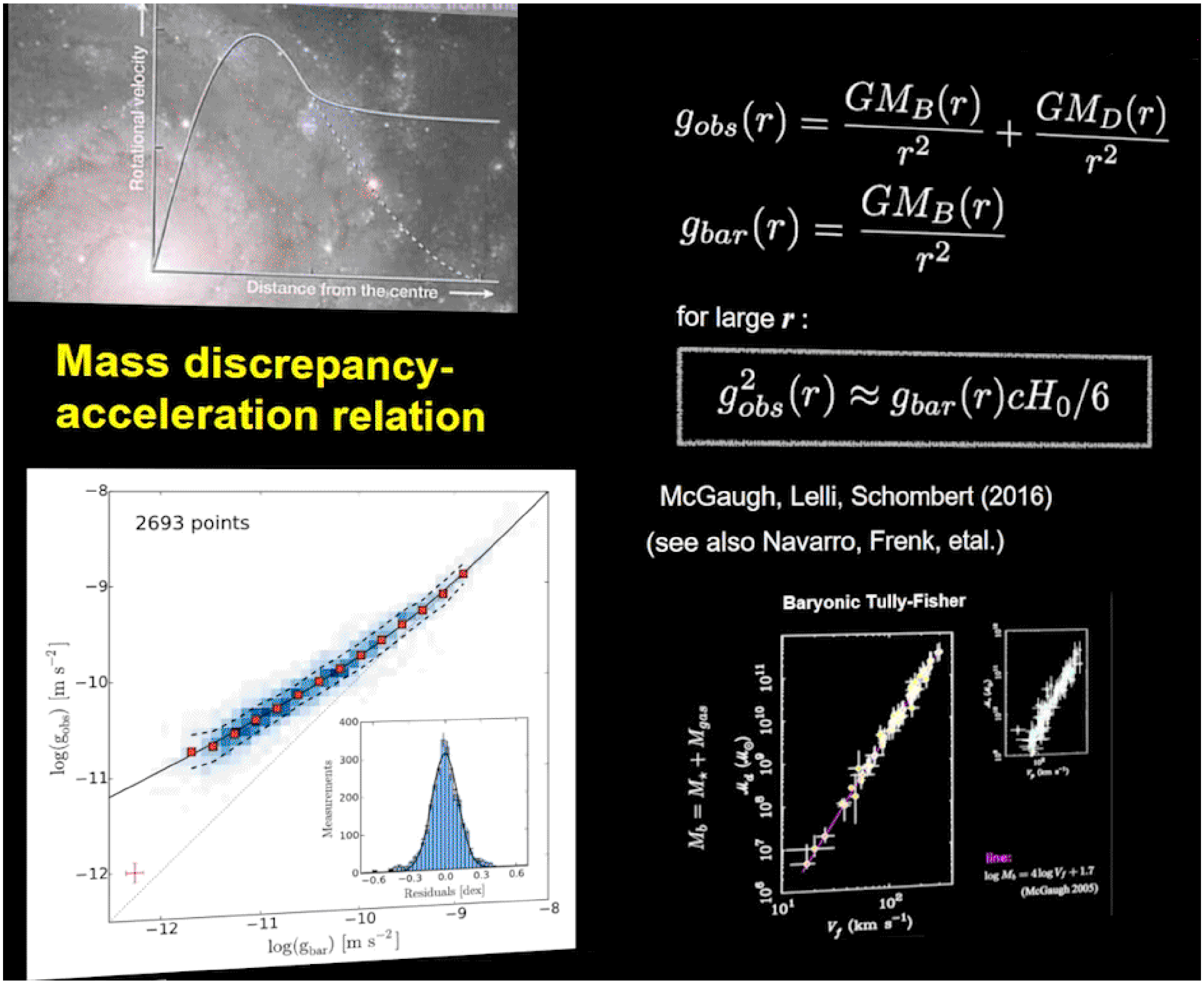

The Holographic Principle
The maximal amount of of information inside a given region can not exceed the area of its boundary.

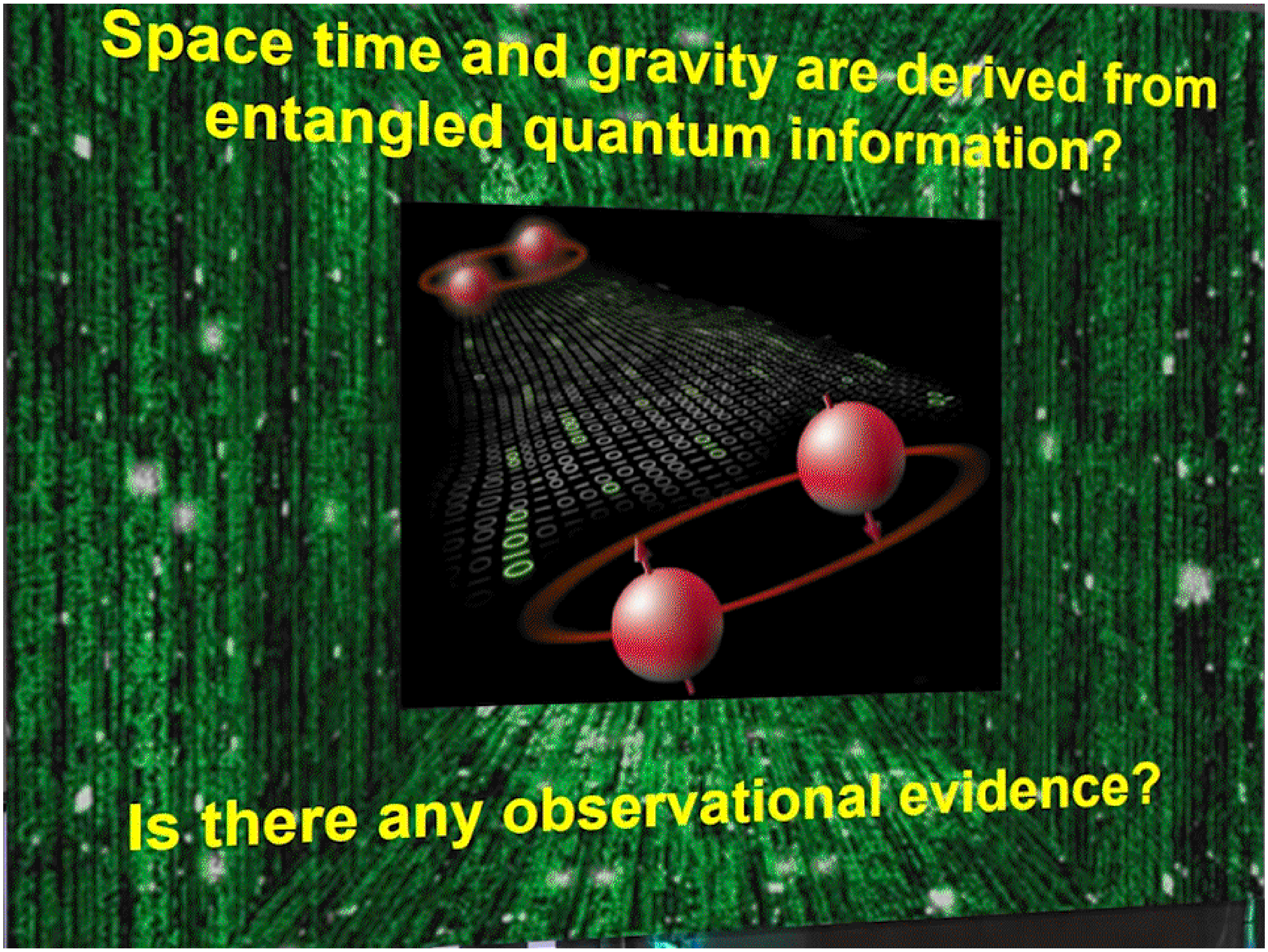

$\Delta x = \frac{\hbar}{mc}$
$\Delta S = 2\pi k_B$
$F\Delta x = T\Delta S$
$F = \frac{GMm}{R^2}$
R M
$\# \ bits = \frac{4\pi R^2}{\ell^2}$
$\ell^2 = \frac{G\hbar}{c^3}$
$\frac{1}{2} k_B T = E / \# bits$
$E = Mc^2$

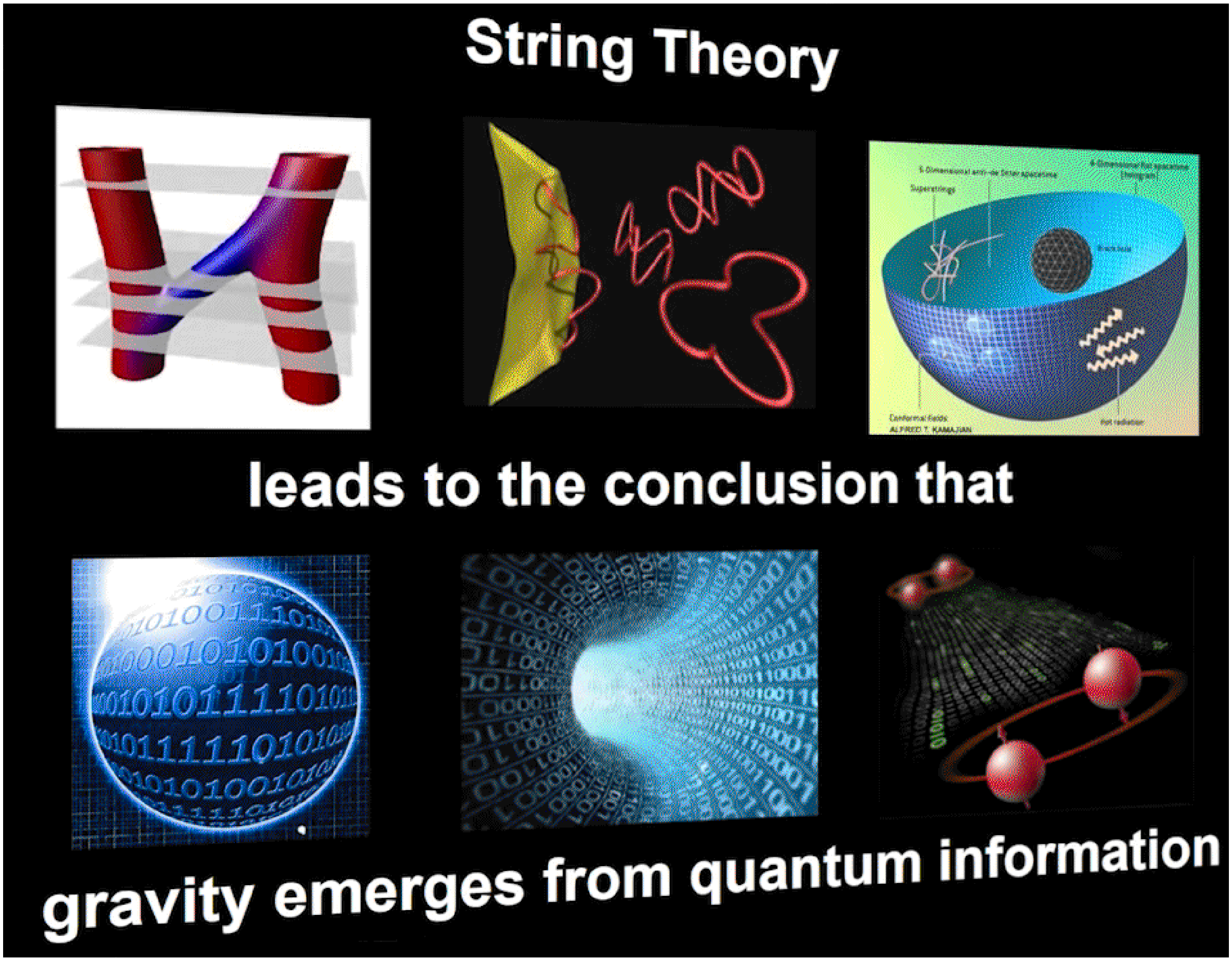

EMERGENT
FORCES
SPACETIME
MATTER
DARK MATTER
DARK ENERGY


Galaxy - Matter Vortex
Air Vortex
Water Vortex
Three different but optically similar natural phenomena.
Is the underlying physics also similar?


Rotational Velocity
Distance from the centre
$\frac{v_{obs}^2}{R} = \frac{GM_B(R)}{R^2} + \frac{GM_D(R)}{R^2}$
$\frac{v^2}{R} = \frac{GM_B(R)}{R^2}$
$\frac{1}{8\pi G}\int_{r\leq R} g_i^2\, dV = \frac{M_B c R}{\hbar}\frac{\hbar H_0}{6}$


Rotational velocity
Distance from the centre
$g_{obs}(r) = \frac{GM_B(r)}{r^2} + \frac{GM_D(r)}{r^2}$
$g_{bar}(r) = \frac{GM_B(r)}{r^2}$
for large *r* :
$g^2_{obs}(r) \approx g_{bar}(r)cH_0/6$
Mass discrepancy-acceleration relation
2693 points
log(g_obs) [m s^-2]
log(g_bar) [m s^-2]
Measurements
Residuals [dex]
McGaugh, Lelli, Schombert (2016)
(see also Navarro, Frenk, etal.)
Baryonic Tully-Fisher
$M_b = M_* + M_{gas}$
V_f (km s^{-1})
line:
$\log M_b = 4 \log V_f + 1.7$
(McGaugh 2005)


Space time and gravity are derived from entangled quantum information?
Is there any observational evidence?



3. An expanding multi-dimensional super-membraned open and closed Universe

The expansion of the universe can be revisited in a reformulation of the standard cosmology model Lambda-Cold-Dark-Matter or ΛCDM in terms of a parametrization of the standard expansion parameters derived from the Friedmann equation, itself a solution for the Einstein Field Equations (EFE) applied to the universe itself.

A measured and observed flat universe in de Sitter (dS) 4D-spacetime with curvature k=0, emerges as the result of a topological mirror symmetry between two Calabi Yau manifolds encompassing the de Sitter space time in a multi timed connector dimension. The resulting multiverse or brane world so defines a singular universe with varying but interdependent time cyclicities.

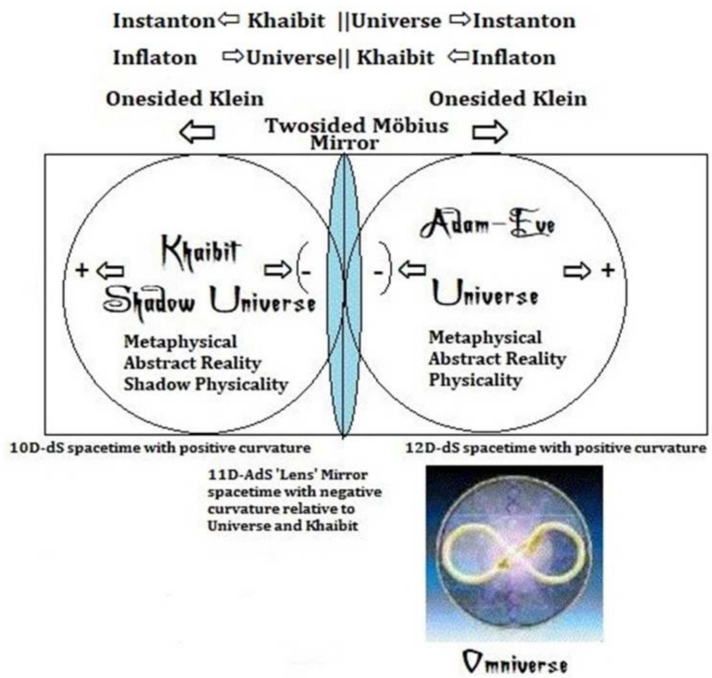
It is proposed, that the multiverse initiates cyclic periods of hyper acceleration or inflation to correlate and reset particular initial and boundary conditions related to a baryonic mass seedling proportional to a closure or Hubble mass to ensure an overall flatness of zero curvature for every such universe parallel in a membrane time space but co-local in its lower dimensional Minkowski space-time.

On completion of a 'matter evolved' Hubble cycle, defined in characteristic Hubble parameters; the older or first universal configuration quantum tunnels from its asymptotic Hubble Event horizon into its new inflaton defined universal configuration bounded by a new Hubble node. The multidimensional dynamics of this quantum tunneling derives from the mirror symmetry and topological duality of the 11-dimensional membrane space connecting two Calabi Yau manifolds as the respective Hubble nodes for the first and the second universal configurations.

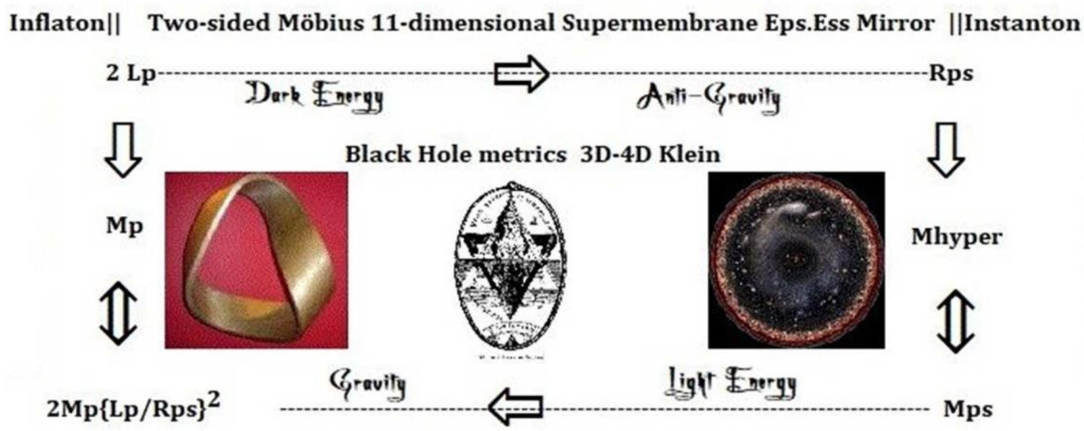
Parallel universes synchronize in a quantized protoverse as a function of the original light path of the Instanton, following not preceding a common boundary condition, defined as the Inflaton. The initial conditions of the Inflaton so change as a function of the imposed cyclicity by the boundary conditions of the paired Calabi Yau mirror duality; where the end of an Instanton cycle assumes the new initial conditions for the next cycle of the Instanton in a sequence of Quantum Big Bangs.

The outer boundary of the second Calabi Yau manifold forms an open dS space-time in 12dimensional brane space (F-Vafa 'bulk' Omni space) with positive spheroidal curvature k=+1 and cancels with its inner boundary as a negatively curved k=-1 hyperbolic AdS space-time in 11 dimensions to form the observed 4D/10-dimensional zero curvature dS space-time, encompassed by the first Calabi Yau manifold.

A bounded (sub) 4D/10D dS space-time then is embedded in a Anti de Sitter (AdS) 11D-spacetime of curvature k=-1 and where 4D dS space-time is compactified by a 6D Calabi Yau manifold as a 3-torus and parametrized as a 3-sphere or Riemann hypersphere. The outer boundary of the 6D Calabi Yau manifold then forms a mirror duality with the inner boundary of the 11D Calabi Yau event horizon and images the positive curvature in 12D-F-Vafa space in a 'convex lens' effect of 11-dimensional M-Witten spacetime.



The Symmetry of Quantum Gravitation in the Cosmology of Black Hole Physics



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 super membrane $E_{ps}E_{ss}$ is EssBaab. 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 $h/2\pi c$ = MpLp = MpsRps. 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 $½\{R_{ps}/L_p\}^2$.

Every Inflaton defines three Hubble nodes or time space mirrors; the first being the 'singularity - wormhole' configuration; the second the nodal boundary for the 4D/10D dS space-time and the third the dynamic light path bound for the Hubble Event horizon in 5D/11D AdS time-space. The completion of a 'de Broglie wave matter' evolution cycle triggers the Hubble Event Horizon as the inner boundary of the time-space mirrored Calabi Yau manifold to quantum tunnel onto the outer boundary of the space-time mirrored Calabi Yau manifold in a second universe; whose inflaton was initiated when the light-path in the first universe reached its second Hubble node.

For the first universe, the three nodes are set in time-space as $\{3.3\text{x}10^{-31}$ s; 16.88 Gy; 3.96 Ty$\}$ and the second universe, time shifted in $t_1=t_o+t$ with $t_o=1/H_o$ has a nodal configuration $\{t_o+1.4\text{x}10^{-33}$; t_o+3,957 Gy; t_o+972.7 Ty$\}$; the latter emerging from the time-space as the instanton at time marker t_o.

A third universe would initiate at a time coordinate $t_2=t_o+t_1+t$ as $\{1/H_o+234.472/H_o+5.8\text{x}10^{-36}$ s; t_o+t_1+972.7 Ty; t_o+t_1+250,223 Ty$\}$; but as the second node in the second universe cannot be activated by the light path until the first universe has reached its 3.96 trillion year marker (and at a time for a supposed 'heat death' of the first universe due to exhaustion of the nuclear matter sources); the third and following nested universes cannot be activated until the first universe reaches its n=1+234.472=235.472 time-space coordinate at 3,974.8 billion years from the time instanton aka the Quantum Big Bang.

For a present time-space coordinate of $n_{present}$=1.13271 however; all information in the first universe is being mirrored by the time-space of the AdS space-time into the dS space-time of the second universe at a time frame of $t = t_1 - t_o$ = 19.12 - 16.88 = 2.24 billion years and a multidimensional time interval characterizing the apparent acceleration observed and measured in the first universe of the Calabi Yau manifold compressed or compactified flat dS Minkowski cosmology. The solution to the Dark Energy and Dark Matter question of a 'missing mass' cosmology is described in this discourse and rests on the evolution of a multiverse in matter.

(*Continued on Part II*)

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Exploration

A Revision of the Friedmann Cosmology (Part II)

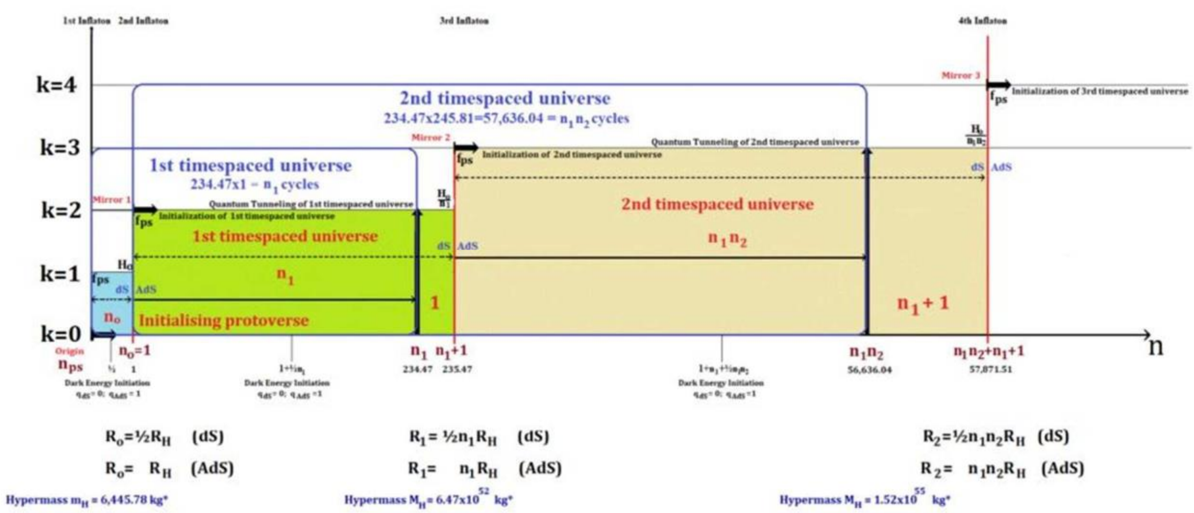
Anthony Bermanseder[2]

Abstract

In this article, the author will show that the cosmological field equations 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 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 naturally and universally replaces the enigma of the 'dark energy' with a space inherent angular acceleration component. The field equations so can be generalized in a parametrization of the Hubble Constant assuming a cyclic form, oscillating between a minimum and maximum value. 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.

Keywords: Friedmann cosmology, revision, field equation, Hubble Constant, Einstein Lambda.

(*Continued from Part I*)



[View: https://youtu.be/RF7dDt3tVmI](https://youtu.be/RF7dDt3tVmI)

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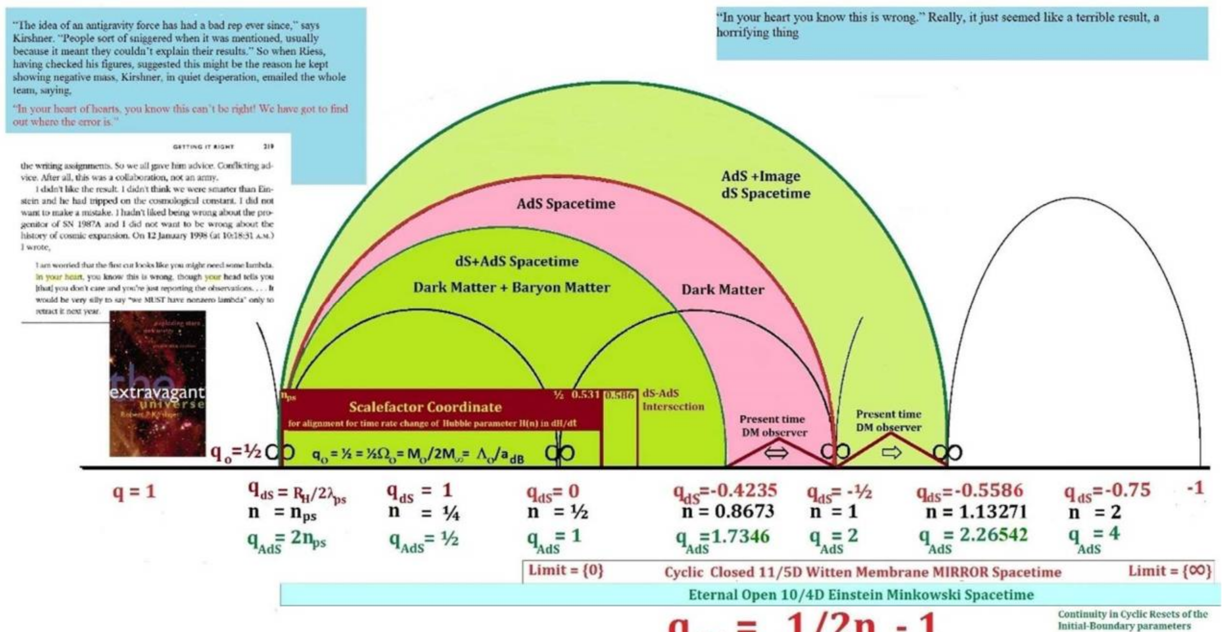


$$q_{dS} = 1/2n - 1$$
$$q_{AdS} = 2n$$

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

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

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

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

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 $n=2-\surd 2=0.586$ 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 6.696×10^{-11} N/m^2, translating into a Lambda of 1.039×10^{-36} s^{-2} and 1.154×10^{-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.

The 'naked singularity' can be defined as the ratio of the minimum to the maximum and calculates as the genetic 'NullTime' $n_{ps}=\lambda_{ps}/r_{max}=6.259093485\times 10^{-49}$ in dimensionless cycletime units (Tau-Time in General Relativity).
This NullTime precedes the Planck-Time $t_P=h/2\pi c^2 m_P=6.9653035\times 10^{-44}$ seconds (s) by a factor of 111,283, should timeunits be assigned to n_{ps}.*
The 'naked singularity' can then be redefined as the GENESIS-BOSON with a pre-Planck energy spectrum of 6.59×10^{24} GeV, an effective 'size' of 3×10^{-41} metres (m) and a preBig Bang temperature of 7.67×10^{37} Kelvin (K).

Timeinstantenuity ends the 'Bosonic Epoch' of the superbranes at $t_{ps}=3.3301\times10^{-31}$ s and renders the Guth-Linde-Inflation as 'classically dynamic' in General Relativity. The negative curvature of 10D-C-Space is 'flattened' in the positive curvature of 11D-M-Space and an overall observed Euclidean flat cosmos is realised.

Hubble Parameter	$H(n) = \{c/[n+1]^2\}/\{R_H(n/[n+1])\} = H_o/T(n) = H_o/(n[n+1])$
Timerate change Hubble Parameter in AdS without dS	$d(H(n)/dt\|_{AdS} = \{dH(n)/dn\}.\{dn/dt\} = -H_o^2/n^2$ by $H(n) = c/nR_H$ with $\Lambda(n) = 0$
Timerate change Hubble Parameter in AdS with dS	$d(H(n)/dt\|_{Ads+dS} = -H_o^2.(2n+1)(n+½+1)/(n[n+1])^2 = -4\pi G\{\rho+P/c^2\} = \rho_{B/DM} + \rho_{\Lambda/DE}$
Dark Energy Parameter with $\Lambda_{(E)instein} = 0$	$\Lambda(n)/R(n) = \Lambda_E/3 - 4\pi GP/c^2 = \rho_B + \rho_\Lambda = G_oM_o/R(n)^3 - 2H_o^2/\{n[n+1]^2\}$

(1) $q(n) = -\ddot{a}.a/\dot{a}^2 = -\{-2cH_oR_H/[n+1]^3\}.\{nR_H/([n+1])/c^2/[n+1]^2\} = 2n$ *for AdS spacetime and dS spacetime for* $H_o = c/R_{(H)ubble/max}$

$r(n) = r_{max}(1 - 1/(n+1))$ *(Parametric Scalefactor for Distance)*

$\dot{r}(n) = c/(n+1)^2$ *(Parametrisation for Velocity)*

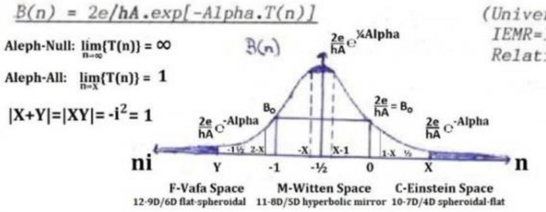
$\ddot{r}(n) = -2cH_o/(n+1)^3 = a_o(n)$ [Milgrom] *(Parametrisation for Acceleration)*

$n = H_ot$ with $c=f_{ps}\lambda_{ps} = H_or_{max}$ and $H_o=dn/dt=constant=1.879564359\times10^{-18}$ 1/s]

(2)

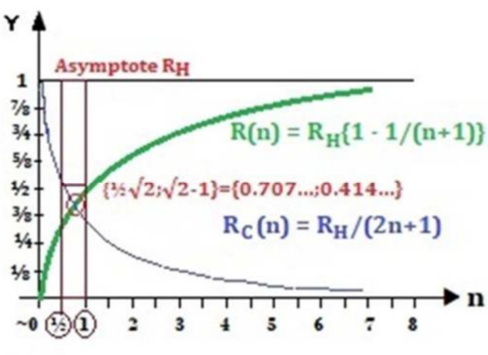
with $T^2(n) = 1 = X(X+1) = -i^2 = -XY$ in the Feynman-Path-Integral as alternative quantum mechanical formulation for the equations of Schrödinger, Dirac and Klein-Gordon by: $T(n)=n(n+1)=|-n|+...+|-3|+|-2|+|-1|+0+1+2+3+...+n$

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



$R(n) = ½ R_H$ for $n=1$ ⇨ R_H for $n\to\infty$

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

$R_C(n) = ½R_H$ for $n=½$ ⇨ 0 for $n\to\infty$

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

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

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

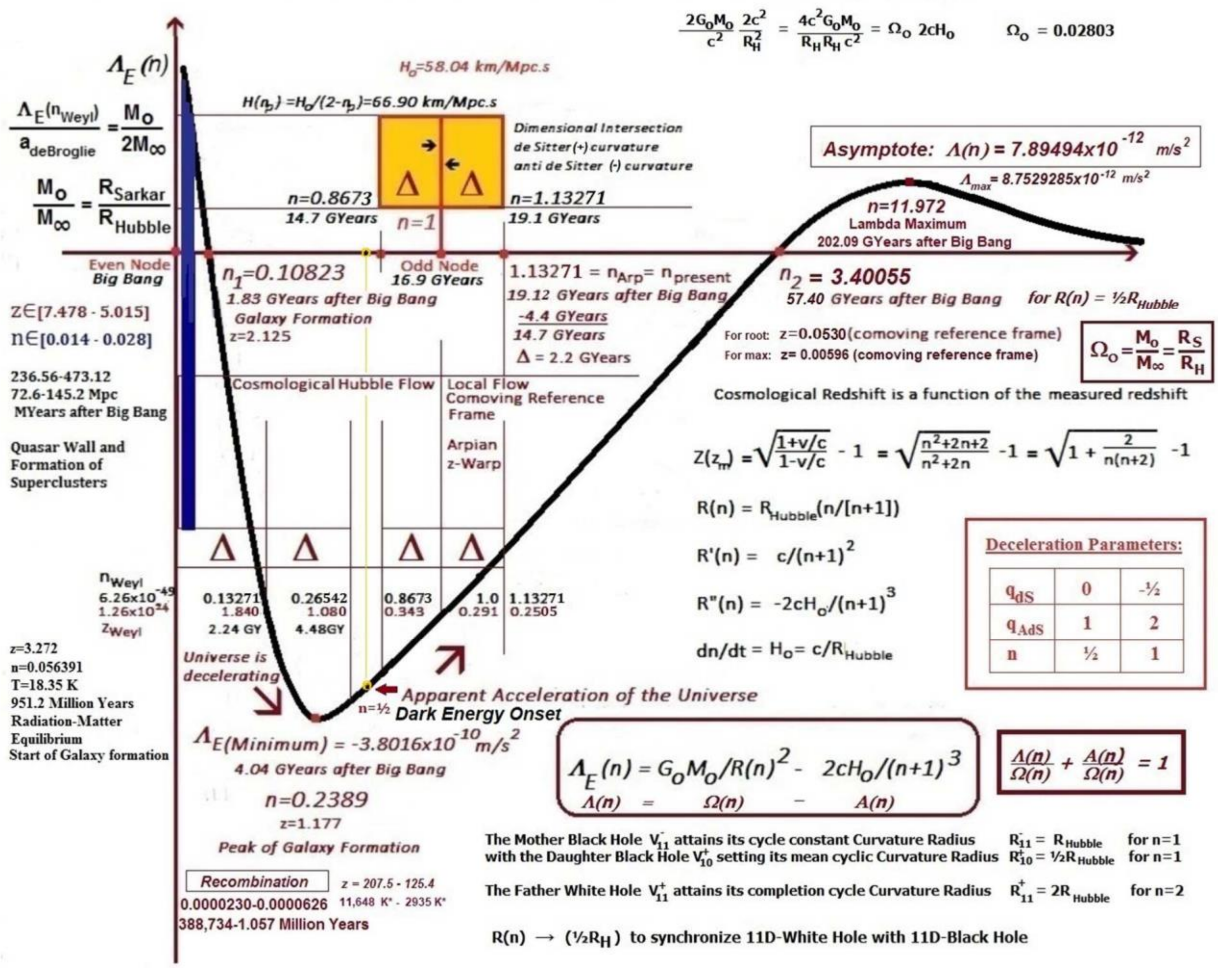
$dT(n,t)/dt = T'(t) = T'(n).dn/dt = H_o\{2n+1\}$

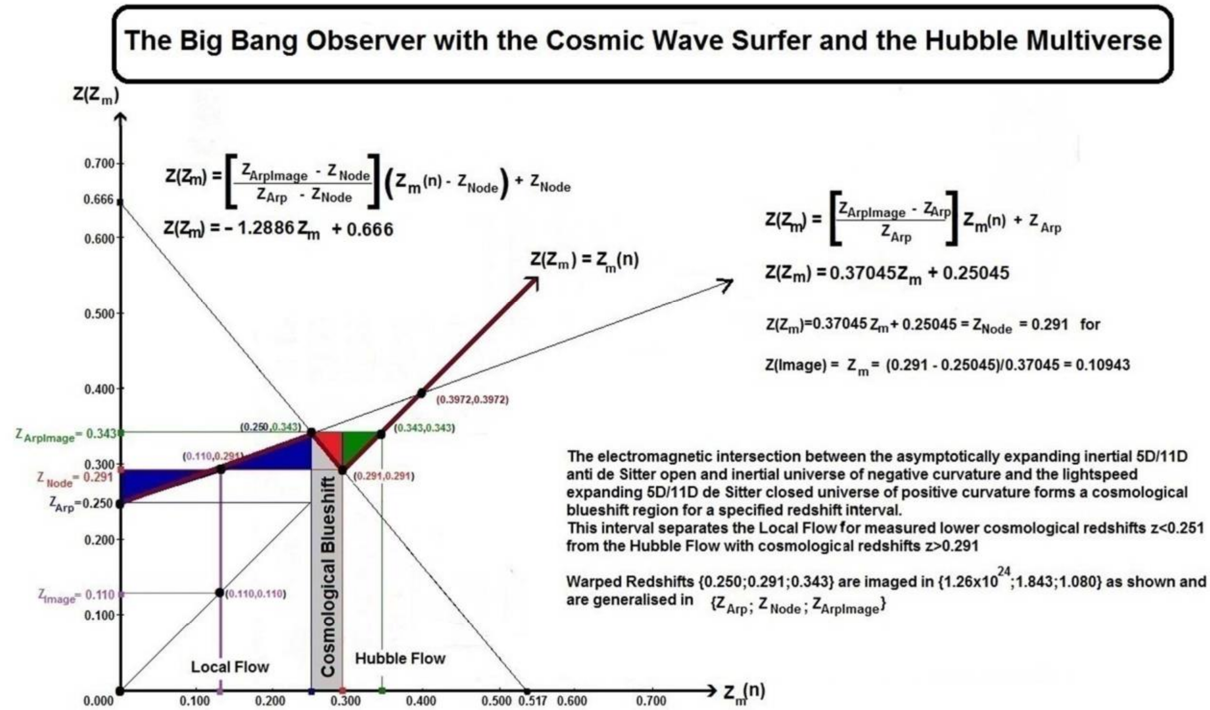
At the instanton t_{ps}, a de Broglie Phase-Inflation defined $r_{max}=a_{dB}/f^2_{ps}$ and a corresponding Phase-Speed $v_{dB}=r_{max}.f_{ps}$.
Those de Broglian parameters constitute the boundary constants for the Guth-Linde inflation and the dynamical behaviour for all generated multiverses as subsets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

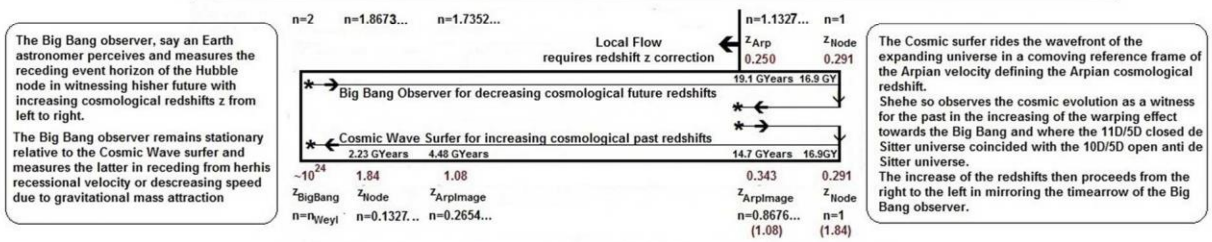




The intersection of the Local Flow cosmological redshift correction line for low redshifts z with the nodal redshift constant line determines a measured redshift z(m) as z(m)=z(image)=0.109 as a critical value for the Hubble Flow for high redshifts.
For this value of z then particular unexpected cosmological 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.

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

$H_{omax} = f_{Weyl} = 3\text{x}10^{30}$ Hz $H(n_{present}) = H_o/(2-n_{present}) = 66.9$ km/Mpcs $H_{omin} = 58.04$ km/Mpcs $= 1.877...\text{x}10^{-18}$ Hz



The dynamic node moves the Hubble event horizon along the basic n-interval $[0\text{-}n_{BB}, 1]$ 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 $\{0\text{-}n_{BB}, 2, 4, 6,...\}$ 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 $a = R_{10}(n)/R_{Hubble} = n/[n+1] = 1\text{-} 1/[n+1]$

<u>Recessional Velocity:</u> $v'/c = 1/(n+1)^2$ 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 $n_p = 1.132711 = 1+0.132711$ and $2\text{-}1.132711 = 0.867289$ (image)

<u>Critical Redshifts:</u>

$Z_{o/arp} = 0.00000$ for $n_p = 1.132711$ and imaged in the limiting $Z_{n\Delta} = 0.34323$ for the Local Flow LF

$Z_{M231} = 0.04147$ for a LF-n=3.96225 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= 2.108730 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 = $n_p - 0.132711$; 2.24 Gly from n_p

$Z_{Q3C273} = 0.1583$ with $v'/c = 0.1459$ and for a n=1.6180 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 1.132711-0.94993 = 0.18278 from the n_p cycle coordinate at a displacement of $2.9202\text{x}10^{25}$ 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=0.132711 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

$\mathbf{Y_n = R_{Hubble}/r_{Weyl} = 2\pi R_{Hubble}/\lambda_{Weyl} = \omega_{Weyl}/H_o = 2\pi n_{Weyl} = n_{ps}/2\pi = 1.003849x10_{49}}$

2nd Inflaton/Quantum Big Bang redefines for k=1: $R_{Hubble(1)} = n_1R_{Hubble} = c/H_{o(1)}$ = (234.472)R_{Hubble} = 3.746x10^{28} m* in 3.957 Trillion Years for critical n_k
3rd Inflaton/Quantum Big Bang redefines for k=2: $R_{Hubble(2)} = n_1n_2R_{Hubble} = c/H_{o(2)}$ = (234.472)(245.813)R_{Hubble} = 9.208x10^{30} m* in 972.63 Trillion Years for critical n_k
4th Inflaton/Quantum Big Bang redefines for k=3: $R_{Hubble(3)} = n_1n_2n_3R_{Hubble} = c/H_{o(3)}$ = (57,636.27)(257.252)R_{Hubble} = 2.369x10^{33} m* in 250.24 Quadrillion Years for critical n_k
5th Inflaton/Quantum Big Bang redefines for k=4: $R_{Hubble(4)} = n_1n_2n_3n_4R_{Hubble} = c/H_{o(4)}$ = (14,827,044.63)(268.785)R_{Hubble} = 6.367x10^{35} m* in 67.26 Quintillion Years for critical n_k
...
(k+1)th Inflaton/Quantum Big Bang redefines for k=k: $R_{Hubble(k)} = R_{Hubble}\,\Pi\, n_k = c/H_o\,\Pi\, n_k$
.....

$\mathbf{n_k = \ln\{\omega_{Weyl}R_{Hubble(k)}/c\}/\ln Y = \ln\{\omega_{Weyl}/H_{o(k)}\}/\ln Y}$

n_1 = 234.471606... n_2 = 245.812422... n_3 = 257.251394... n_4 = 268.784888...

Dark Energy DE-Quintessence Λ_k Parameters:

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 scale factored curvature radius R(n):

$\Lambda_k(n) = G_oM_o/R_k(n)^2 - 2cH_o(\Pi n_k)^2/\{n-\Sigma\Pi n_{k-1}+\Pi n_k)^3\}$ for negative Pressure $P_k = \Lambda_k(n)c^2/4\pi G_oR_k$

$= \{G_oM_o(n-\Sigma\Pi n_{k-1}+\Pi n_k)^2/\{(\Pi n_k)^2.R_H^2(n-\Sigma\Pi n_{k-1})^2\} - 2cH_o(\Pi n_k)^2/\{n-\Sigma\Pi n_{k-1}+\Pi n_k)^3\}$

$\Lambda_o = G_oM_o(n+1)^2/R_H^2(n)^2 - 2cH_o/(n+1)^3$
$\Lambda_1 = G_oM_o(n-1+n_1)^2/n_1^2R_H^2(n-1)^2 - 2cH_on_1^2/(n-1+n_1)^3$
$\Lambda_2 = G_oM_o(n-1-n_1+n_1n_2)_2/n_{12}n_{22}R_{H2}(n-1-n_1)^2 - 2cH_on_{12}n_{22}/(n-1-n_1+n_1n_2)^3$
.....

Lambda-DE-Quintessence Derivatives:

$\Lambda_k'(n) = d\{\Lambda_k\}/dn$ =
$\{G_oM_o/\Pi n_k^2R_H^2\}\{2(n-\Sigma\Pi n_{k-1}+\Pi n_k).(n-\Sigma\Pi n_{k-1})^2 - 2(n-\Sigma\Pi n_{k-1}).(n-\Sigma\Pi n_{k-1}+\Pi n_k)^2\}/\{(n-\Sigma\Pi n_{k-1})^4\}$ -
$\{-6cH_o(\Pi n_k)^2\}/(n-\Sigma\Pi n_{k-1}+\Pi n_k)^4$

$= \{-2G_oM_o/\Pi n_kR_H^2\}(n-\Sigma\Pi n_{k-1}+\Pi n_k)/(n-\Sigma\Pi n_{k-1})^3 + \{6cH_o(\Pi n_k)^2\}/(n-\Sigma\Pi n_{k-1}+\Pi n_k)^4$
$= \{6cH_o(1)^2\}/\{(n-0+1)^4\} - \{2G_oM_o/1.R_H^2\}\{(n-0+1)/(n-0)^3\}$....................................... for k=0
$= \{6cH_o(1.n_1)^2\}/\{(n-1+n_1)^4\} - \{2G_oM_o/n_1.R_H^2\}\{(n-1+n_1)/(n-1)^3\}$................................ for k=1
$= \{6cH_o(1.n_1.n_2)^2\}/\{(n-1-n_1+n_1.n_2)^4\} - \{2G_oM_o/n_1n_2.R_H^2\}\{(n-1-n_1+n_1n_2)/(n-1-n_1)^3\}$...... for k=2
....

For k=0; $\{G_oM_o/3c^2R_H\}$ = constant = $n^3/[n+1]^5$ for
roots $n_{\Lambda min}$ = 0.23890175.. and $n_{\Lambda max}$ = 11.97186...
$\{G_oM_o/2c^2R_H\}$ = constant = $[n]^2/[n+1]^5$

for Λ_o-DE roots: $n_{+/-}$ = 0.1082331... and $n_{-/+}$ = 3.40055... for asymptote $\Lambda_{0\infty} = G_oM_o/R_H^2$ = 7.894940128...x10^{-12} (m/s^2)*

For k=1; $\{G_oM_o/3n_1^3c^2R_H\}$ = constant = $[n-1]^3/[n-1+n_1]^5 = [n-1]^3/[n+233.472]^5$ for
roots $n_{\Lambda min}$ = 7.66028... and $n_{\Lambda max}$ = 51,941.9..
$\{G_oM_o/2n_1^4c^2R_H\}$ = constant = $[n-1]^2/[n-1+n_1]^5 = [n-1]^2/[n+233.472]^5$
for Λ_1-DE roots: $n_{+/-}$ = 2.29966... and $n_{-/+}$ = 7,161.518... for asymptote $\Lambda_{1\infty} = G_oM_o/n_1^2R_H^2$ = 1.43604108...x10^{-16} (m/s^2)*

For k=2; $\{G_oM_o/3n_1^3n_2^3c^2R_H\}$ = constant = $[n-1-n_1]^3/[n-1-n_1+n_1n_2]^5$ = $[n-235.472]^3/[n+57,400.794]^5$
for roots $n_{\Lambda min}$= 486.7205 and $n_{\Lambda max}$ = 2.0230105x10^8
$\{G_oM/[n-1-n_1+n_1n_2]^5 = [n-235.472]^2/[n+57,400.794]^5$
for Λ_2-DE roots: $n_{+/-}$ = 255.5865... and $n_{-/+}$ = 1.15382943...x10^7 for asymptote $\Lambda_{2\infty}$ = $G_oM_o/n_1^2n_2^2R_H^2$ = 2.37660590...x10^{-21} (m/s^2)*

For k=3; $\{G_oM_o/3n_1^3n_2^3n_3^3c^2R_H\}$ = constant = $[n-1-n_1-n_1n_2]^3/[n-1-n_1-n_1n_2+n_1n_2n_3]^5$ = $[n-57,871.74]^3/[n+1.47691729x10^7]^5$ for roots $n_{\Lambda min}$ = 67,972.496 and $n_{\Lambda max}$ = 8.3526797...x10^{11}
$\{G_oM_o/2n_1^4n_2^4n_3^4c^2R_H\}$ = constant = $[n-1-n_1-n_1n_2]^2/[n-1-n_1-n_1n_2+n_1n_2n_3]^5$ = $[n-57,871.74]^2/[n+1.47691729x10^7]^5$ for Λ_3-DE roots: $n_{+/-}$ = 58,194.1... and $n_{-/+}$ = 1.9010262...x10^{10} for asymptote $\Lambda_{3\infty} = G_oM_o/n_1^2n_2^2n_3^2R_H^2$ = 3.59120049...x10^{-26} (m/s^2)*

and where

$\Pi n_k=1=n_o$ and $\Pi n_{k-1}=0$ for k=0 with Instanton/Inflaton resetting for initial boundary parameters

$\Lambda_o/a_{deBroglie} = \{G_oM_o/R_k(n)^2\}/\Pi n_kR_Hf_{ps}^2$
$= \{G_oM_o(n-\Sigma\Pi n_{k-1}+\Pi n_k)^2\}/\{[\Pi n_k]^2.R_H^2(n-\Sigma\Pi n_{k-1})^2(\Pi n_kR_Hf_{ps}^2)\} = (\Pi n_k)½\Omega_o$

for Instanton-Inflaton Baryon Seed Constant $\Omega_o = M_o^*/M_H^* = 0.02803$ for the kth universal matter evolution

k=0 for Reset $n=n_{ps}=H_ot$ and $\Lambda_o/a_{deBroglie} = G_oM_o(n_{ps}+1)^2/\{R_H^3n_{ps}^2(f_{ps}^2)\} = G_oM_o/R_Hc^2 = M_o/2M_H = ½\Omega_o$
k=1 for Reset $n=1+n_{ps}$ and $\Lambda_o/a_{deBroglie} = G_oM_o(1+n_{ps}-1+n_1)^2/\{[n_1]^2.R_H^3(1+n_{ps}-1)^2(n_1f_{ps}^2)\} = M_o/2n_1M_H = M_o/2M_H^* = ½\Omega_o^*$
k=2 for Reset $n=n_1+1+n_{ps}$ and $\Lambda_o/a_{deBroglie} = G_oM_o(n_1+1+n_{ps}-1-n_1+n_1n_2)^2/\{[n_1n_2]^2.R_H^3(n_1+1+n_{ps}-1-n_1)^2(n_1n_2f_{ps}^2)\} = ½\Omega_o^{**}$ k=3 for Reset $n=n_1n_2+n_1+1+n_{ps}$ and $\Lambda_o/a_{deBroglie} = G_oM_o(n_1n_2+n_1+1+n_{ps}-1-n_1n_1n_2+n_1n_2n_3)^2/\{[n_1n_2n_3]^2.R_H^3(n_1n_2+n_1+1+n_{ps}-1-n_1-n_1n_2)^2(n_1n_2n_3f_{ps}^2)\} = ½\Omega_o^{***}$
...

with $n_{ps} = 2\pi\Pi n_{k-1}.X_{nk} = \lambda_{ps}/R_H = H_ot_{ps} = H_o/f_{ps} = ct_{ps}/R_H$ and $R_H=2G_oM_H/c^2$

$N_o=H_ot_o/n_o=H_ot=n$
$N_1=H_ot_1/n_1=(n-1)/n_1$
$N_2=H_ot_2/n_1n_2=(n-1-n_1)/n_1n_2$
$N_3=H_ot_3/n_1n_2n_3=(n-1-n_1-n_1n_2)/n_1n_2n_3$
...
$dn/dt=H_o$
...

$N_k=H_ot_k/\Pi n_k=(n-\Sigma\Pi n_{k-1})/\Pi n_k$ $t_k = t - (1/H_o)\Sigma\Pi n_{k-1}$ for $n_o=1$ and $N_o=n$

$t_o=t=n/H_o=N_o/H_o=nR_H/c$ $t_1=t-1/H_o=(n-1)/H_o=[n_1N_1]/H_o$
$t_2=t-(1+n_1)/H_o=(n-1-n_1)/H_o=(n_1n_2N_2)/H_o$ $t_3=t-(1+n_1+n_1n_2)/H_o=(n-1-n_1-n_1n_2)/H_o=(n_1n_2n_3N_3)/H_o$
...

$R(n)=R(N_o)=n_oR_H\{n/[n+1]\}=R_H\{n/[n+1]\}$
$R_1(N_1)=n_1R_H\{N_1/[N_1+1]\}=n_1R_H\{[n-1]/[n-1+n_1]\}$
$R_2(N_2)=n_1n_2R_H\{N_2/[N_2+1]\}=n_1n_2R_H\{[n-1-n_1]/[n-1-n_1+n_1n_2]\}$
$R_3(N_3)=n_1n_2n_3R_H\{N_3/[N_3+1]\}=n_1n_2n_3R_H\{[n-1-n_1-n_1n_2]/[n-1-n_1-n_1n_2+n_1n_2n_3]\}$
...

$\mathbf{R_k(n) = \Pi n_k R_H(n-\Sigma\Pi n_{k-1})/\{n-\Sigma\Pi n_{k-1}+\Pi n_k\}}$

$...= R_H(n/[n+1]) = n_1R_H(N_1/[N_1+1]) = n_1n_2R_H(N_2/[N_2+1]) =...$

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

$...= c/[n+1]^2 = c/[N_1+1]^2 = c/[N_2+1]^2 =...$
$...= c/[n+1]^2 = c(n_1)^2/[n-1+n_1]^2 = c(n_1n_2)^2/[n-1-n_1+n_1{}^2n_2{}^2]^2 =...$

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

$...= -2cH_o/(n+1)^3 = -2cH_o/n_1(N_1+1)^3 = -2cH_o/n_1n_2(N_2+1)^3=.....$
$... = -2cH_o/[n+1]^3 = -2cH_o\{n_1\}^2/[n-1+n_1]^3 = -2cH_o(n_1n_2)^2/[n-1-n_1+n_1n_2]^3 =...$
G_oM_o is the Gravitational Parameter for the Baryon mass seed; Curvature Radius $R_H = c/H_o$ in the nodal Hubble parameter H_o and c is the speed of light

Hubble Parameters:

$H(n)|_{dS} = \{V_k(n)\}/\{R_k(n)\} = \{c[\Pi n_k]^2/[n-\Sigma\Pi n_{k-1}+\Pi n_k]^2\}/\{\Pi n_k.R_H[n-\Sigma\Pi n_{k-1}]/(n-\Sigma\Pi n_{k-1}+\Pi n_k)\} = \Pi n_kH_o/\{[n-\Sigma\Pi n_{k-1}][n-\Sigma\Pi n_{k-1}+\Pi n_k]\}$

$H(n)|_{dS} = \Pi n_kH_o/\{[n-\Sigma\Pi n_{k-1}][n-\Sigma\Pi n_{k-1}+\Pi n_k]\}$

$...= H_o/\{[n][n+1]\}=H_o/T(n) = n_1H_o/\{[n-1][n-1+n_1]\} = n_1n_2H_o/\{[n-1-n_1][n-1-n_1+n_1n_2]\} =...$ for dS

$H(n)'|_{dS} = H_o/[n-\Sigma\Pi n_{k-1}]$ for oscillating H'(n) parameter between nodes k and k+1 $||n_{ps}+\Sigma\Pi n_{k-1} - \Sigma\Pi n_k||$

$H(n)|_{AdS} = H(n)'|_{AdS} = \{V_k(n)\}/\{R_k(n)\} = c/\{R_H(n-\Sigma\Pi n_{k-1})\}$

$H(n)|_{AdS} = H(n)' = H_o/(n-\Sigma\Pi n_{k-1})$

$...= H_o/n = H_o/(n-1) = H_o/(n-1-n_1) =...$ for AdS

For initializing scale modulation $R_k(n)_{Ads}/R_k(n)_{dS} + ½ = \Pi n_kR_H(n-\Sigma\Pi n_{k-1})/\{\Pi n_kR_H(n-\Sigma\Pi n_{k-1})/(n-\Sigma\Pi n_{k-1}+\Pi n_k)\} + ½\Pi n_k = \{n - \Sigma\Pi n_{k-1} + \Pi n_k + ½\}$ reset coordinate

$dH/dt = (dH/dn)(dn/dt) = -\Pi n_k.H_o{}^2\{(2n-2\Sigma\Pi n_{k-1}+\Pi n_k)(n-\Sigma\Pi n_{k-1}+\Pi n_k+½\Pi n_k)\}/\{n^2-2n\Sigma\Pi n_{k-1}+(\Sigma\Pi n_{k-1})^2+\Pi n_k[n-\Sigma\Pi n_k]\}^2$

$= -2\Pi n_k H_o^2\{[n - \Sigma\Pi n_{k-1} + \Pi n_k]^2 - ¼\Sigma\Pi n_k^2\}/\{(n-\Sigma\Pi n_{k-1})(n-\Sigma\Pi n_{k-1}+\Pi n_k)\}^2$

$dH/dt|_{dS} = -2\Pi n_k H_o^2\{[n - \Sigma\Pi n_{k-1} + \Pi n_k]^2 - ¼(\Sigma\Pi n_k)^2\}/\{(n-\Sigma\Pi n_{k-1})(n-\Sigma\Pi n_{k-1}+\Pi n_k)\}^2$

$...= -2H_o^2([n+1]^2-¼)/\{n[n+1]\}^2 = -2n_1H_o^2\{[n-1+n_1]^2-¼n_1^2\}/\{[n-1][n-1+n_1]\}^2 = -2n_1n_2H_o^2\{[n-1n_1+n_1n_2]^2-¼n_1^2n_2^2\}/\{[n-1-n_1][n-1-n_1+n_1n_2]\}^2 =...$

$dH/dt = (dH/dn)(dn/dt) = -H_oc/\{(R_H(n-\Sigma\Pi n_{k-1})^2\} = -H_o^2/\{n-\Sigma\Pi n_{k-1}\}^2$ for AdS

$dH/dt|_{AdS} = -H_o^2/\{n-\Sigma\Pi n_{k-1}\}^2$

$...= -H_o^2/n^2 = H_o^2/(n-1)^2 = -H_o^2/(n-1-n_1)^2 = ...$

$dH/dt + 4\pi G_o\rho = - 4\pi G_oP/c^2$

$dH/dt + 4\pi G_oM_o/R_k(n)^3 = \Lambda_k(n)/R_k(n) = - 4\pi G_oP/c^2 = G_oM_o/R_k(n)^3 - 2(\Pi n_k)H_o^2/\{(n-\Sigma\Pi n_{k1})(n-\Sigma\Pi n_{k-1}+\Pi n_k)^2\}$ for dS with
$\{-4\pi\}P(n)|_{dS} = M_oc^2/R_k(n)^3 - 2\Pi n_k(H_oc)^2/\{G_o(n-\Sigma\Pi n_{k-1})(n-\Sigma\Pi n_{k-1}+\Pi n_k)^2\} = M_oc^2(n-\Sigma\Pi n_{k1}+\Pi n_k)^3/\{\Pi n_k.R_H(n-\Sigma\Pi n_{k-1})\}^3 - 2\Pi n_kH_o^2c^2/\{G_o(n-\Sigma\Pi n_{k-1})(n-\Sigma\Pi n_{k-1}+\Pi n_k)^2\}$

$\Lambda_k(n)/R_k(n) = -4\pi G_oP/c^2 = G_oM_o/R_k(n)^3 - dH/dt = G_oM_o/\{R_H(n-\Sigma\Pi n_{k-1})\}^3 - H_o^2/\{n-\Sigma\Pi n_{k-1}\}^2$ for AdS with

$\{-4\pi\}P(n)|_{AdS} = M_oc^2/R_k(n)^3 - (H_oc)^2/\{G_o(n-\Sigma\Pi n_{k-1})^2\} = M_oc^2/\{R_H(n-\Sigma\Pi n_{k-1})\}^3 - H_o^2c^2/\{G_o(n\Sigma\Pi n_{k-1})_2\}$

Deceleration Parameters:

$q_{AdS}(n) = -A_k(n)R_k(n)/V_k(n)^2 = -\{(-2cH_o[\Pi n_k]^2)/(n-\Sigma\Pi n_{k-1}+\Pi n_k)^3\}\{\Pi n_kR_H(n-\Sigma\Pi n_{k-1})/(n-\Sigma\Pi n_{k1}+\Pi n_k)\}/\{[\Pi n_k]^2c/(n-\Sigma\Pi n_{k-1}+\Pi n_k)\}^2$

$= 2(n-\Sigma\Pi n_{k-1})/\Pi n_k$

$q_{AdS+dS}(n) = 2(n-\Sigma\Pi n_{k-1})/\Pi n_k$

$q_{dS}(n) = 1/q_{AdS+dS}(n) - 1 = \Pi n_k/\{2[n-\Sigma\Pi n_{k-1}\} - 1$

with $A_k(n)=0$ for AdS in $a_{reset} = R_k(n)_{AdS}/R_k(n)_{dS} + ½ = \{R_H(n-\Sigma\Pi n_{k-1})\}/\{R_H(n-\Sigma\Pi n_{k-1})/(n-\Sigma\Pi n_{k1}+1)\} + ½ = n-\Sigma\Pi n_{k-1}+1+½$

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

$...= 2n = 2(n-1)/n_1 = 2(n-1-n_1)/(n_1n_2) = 2(n-1-n_1-n_1n_2)/(n_1n_2n_3) = ...$ for AdS

$...= 1/\{2n\} -1 = n_1/\{2[n-1]\} -1 = n_1n_2/\{2(n-1-n_1)\} -1 = n_1n_2n_3/\{2(n-1-n_1-n_1n_2)\} -1 = ...$ for dS

Dark Energy Initiation for $q_{dS}=1$ with $q_{AdS}=1$

k=0 for n = ½ = 0.50000 for $q_{dS}=0$ with $q_{AdS}=1$ k=1 for $n = ½n_1+1 =$ 118.236... for $q_{dS}=0$ with $q_{AdS}=1$ k=2 for $n = ½n_1n_2+n_1+1 =$ 29,053.605... $q_{dS}=0$ with $q_{AdS}=1$ k=3 for $n = ½n_1n_2n_3+n_1n_2+n_1+1 =$ 7,471,394.054.. $q_{dS}=0$ with $q_{AdS}=1$

Temperature:

$T(n) = \sqrt[4]{\{M_oc^2/(1100\ \sigma\pi^2.R_k(n)^2.t_k)\}}$ and for $t_k = (n-\Sigma\Pi n_{k-1})/H_o$
$T_k(n) = \sqrt[4]{\{H_oM_oc^2(n-\Sigma\Pi n_{k-1}+\Pi n_k)^2/[1100\ \sigma\pi^2.R_H^2.(n-\Sigma\Pi n_{k-1})^3]\}}$
$=\sqrt[4]{\{(H_o^3M_o(n-\Sigma\Pi n_{k-1}+\Pi n_k)^2)/[1100\sigma\pi^2(n-\Sigma\Pi n_{k-1})^3]\}} = \sqrt[4]{\{18.199(n-\Sigma\Pi n_{k-1}+\Pi n_k)^2/(n-\Sigma\Pi n_{k-1})^3\}}$

$T(n) ...= \sqrt[4]{\{18.2[n+1]^2/n^3\}} = \sqrt[4]{\{18.2[n-1+n_1]^2/(n-1)^3\}} = \sqrt[4]{\{18.2[n-1-n_1+n_1n_2]^2/(n-1-n_1)^3\}} =...$

Comoving Redshift:

$z + 1 = \sqrt{\{(1+v/c)/(1-v/c)\}} = \sqrt{\{([n-\Sigma\Pi n_{k-1}+\Pi n_k]^2+[\Pi n_k]^2)/([n-\Sigma\Pi n_{k-1}+\Pi n_k]^2-[\Pi n_k]^2)\}}$

$= \sqrt{\{([n-\Sigma\Pi n_{k-1}]^2+2\Pi n_k(n-\Sigma\Pi n_{k-1})+2(\Pi n_k)^2)/([n-\Sigma\Pi n_{k-1}]^2+2\Pi n_k(n-\Sigma\Pi n_{k-1})\}} = \sqrt{\{1 + 2(\Pi n_k)^2/\{(n\Sigma\Pi n_{k-1})(n-\Sigma\Pi n_{k-1}+2\Pi n_k)\}}$
$z+1 = \sqrt{\{ 1 + 2/\{[n^2-2n\Sigma\Pi n_{k-1} +(\Sigma\Pi n_{k-1})^2+2n-2\Sigma\Pi n_{k-1}\}} = \sqrt{\{1+2/\{n(n+2-2\Sigma\Pi n_{k-1}) + \Sigma\Pi n_{k-1}(\Sigma\Pi n_k-2)\}\}}$

$…= \sqrt{\{1+2/(n[n+2])\}} = \sqrt{\{1+2/([n-1][n-1+2n_1])\}} = \sqrt{\{1+2/([n-1-n_1][n-1-n_1+2n_1n_2])\}} =...$

Baryon-Dark Matter Saturation:

$\Omega_{DM} = 1-\Omega_{BM}$ until Saturation for BM-DM and Dark Energy Separation

$\rho_{BM+DM}/\rho_{critical} = \Omega_o Y^{\{[n-\Sigma\Pi nk-1]/\Pi nk\}}/\{(n-\Sigma\Pi n_{k-1})/(n-\Sigma\Pi n_{k-1}+\Pi n_k)\}^3 = M_o Y^{\{[n-\Sigma\Pi nk1\ k}$
$/\{\rho_{critical} R_k(n)^3\}$

Baryon Matter Fraction $\Omega_{BM} = \Omega_o Y^{\{Nk\}} = \Omega_o.Y^{\{[n-\Sigma\Pi nk-1]/\Pi nk\}}$

Dark Matter Fraction $\Omega_{DM} = \Omega_o Y^{\{[n-\Sigma\Pi n_{k-1}]/\Pi n_k\}}\{1-\{(n-\Sigma\Pi n_{k-1})/(n-\Sigma\Pi n_{k-1}+\Pi n_k)\}^3/\{(n-\Sigma\Pi n_{k-1})/(n\Sigma\Pi n_{k-1}+\Pi n_k)\}^3$

$= \Omega_o Y^{\{[n-\Sigma\Pi nk-1]/\Pi nk\}}\{(n-\Sigma\Pi n_{k-1}+\Pi n_k)_3-(n-\Sigma\Pi n_{k-1})_3\}/\{n-\Sigma\Pi n_{k-1}\}_3$
$= \Omega_o Y^{\{[n-\Sigma\Pi nk-1]/\Pi nk\}}\{(1+\Pi n_k/[n-\Sigma\Pi n_{k-1}])_3 -1\} = \Omega_{BM}\{(1+\Pi n_k/[n-\Sigma\Pi n_{k-1}])_3 -1\}$

Dark Energy Fraction $\Omega_{DE} = 1- \Omega_{DM} - \Omega_{BM} = 1 - \Omega_{BM}\{(1+\Pi n_k/[n-\Sigma\Pi n_{k-1}])^3\}$

Ω_{BM}=constant=0.0553575 from Saturation to Intersection with Dark Energy Fraction
$\Omega_o Y^{\{[n-\Sigma\Pi nk-1]/\Pi nk\}} = \rho_{BM+DM} R_k(n)^3/M_H = [N_k]^3/[N_k+1]^3 = \{(n-\Sigma\Pi n_{k-1})/(n-\Sigma\Pi n_{k-1}+\Pi n_k)\}^3 = R_k(n)^3/V_H = V_{dS}/V_{AdS}$
for $\rho_{BM+DM} = M_H/R_H^3 = \rho_{critical}$ and for Saturation at N_i = 6.541188... = constant $\forall N_i$

$(M_o/M_H).Y^{\{[n-\Sigma\Pi nk-1]/\Pi nk\}} = \{(n-\Sigma\Pi n_{k-1})/(n-\Sigma\Pi n_{k-1}+\Pi n_k)\}^3$

with a Solution for f(n) in Newton-Raphson Root Iteration and first Approximation x_0

$x_{k+1} = x_k - f(n)/f'(n)$

$= x_k -\{(M_o/M_H).Y^{\{[n-\Sigma\Pi n_{k-1}]/\Pi n_k\}} - (n-\sum\prod n_{k-1})/(n-\Sigma\Pi n_{k-1}+\Pi n_k)^3\}/\{(M_o/M_H).[\ln Y]\ Y^{\{[n-\Sigma\Pi n_{k-1}]/\Pi n_k\}} - 3(n-\Sigma\Pi n_{k-1})^2/(n-\Sigma\Pi n_{k-1}+\Pi n_k)^4\}$
$x_1 = x_0 - \{(M_o/M_H).Y^{[n]} - (n/n+1)^3\}/\{(M_o/M_H).[\ln Y]Y^{[n]} - 3n^2/[n+1]^4\}$
$= x_0 - \{(M_o/M_H).Y^{\{N_0\}} - (N_0)^3/(N_0+1)^3\}/\{(M_o/M_H).[\ln Y]Y^{\{N_0\}} - 3(N_0)^2/1(N_0+1)^4\}$ $x_1 = x_0 - \{(M_o/M_H).Y^{\{[n-1]/n_1\}} - (n-1)^3/(n-1+n_1)^3\}/\{(M_o/M_H).[\ln Y]Y^{\{[n-1]/n_1\}} - 3(n-1)^2/(n-1+n_1)^4\}$
$= x_0 - \{(M_o/M_H).Y^{\{N_1\}} - (N_1)^3/(N_1+1)^3\}/\{(M_o/M_H).[\ln Y]Y^{\{N_1\}} - 3(N_1)^2/n_1(N_1+1)^4\}$
$x_1 = x_0 - \{(M_o/M_H).Y^{\{[n-1-n1]/n1n2\}} - (n-1-n_1)^3/(n-1-n_1+n_1n_2)^3\}/\{(M_o/M_H).[\ln Y]Y^{\{[n-1-n1]/n1n2\}} - 3(n-1n_1)^2/(n-1-n_1+n_1n_2)^4\}$
$= x_0 - \{(M_o/M_H).Y^{\{N_2\}} - (N_2)^3/(N_2+1)^3\}/\{(M_o/M_H).[\ln Y]Y^{\{N_2\}} - 3(N_1)^2/n_1n_2(N_2+1)^4\}$
...

$n = 1.N_0 = N_i = 6.541188.... \Rightarrow N_i\ \forall I$ for $\prod n_k = n_0 = 1$

$n = n_1N_1+1 = (234.472)(6.541188...)+1 = 1534.725...$ for $\prod n_k = n_0n_1 = n_1$

$n = n_1n_2N_2+1+n_1 = (234.472x245.813)(6.541172)+1+234.472 = 377,244.12...$ for $\prod n_k = n_0n_1n_2 = n_1n_2$

$n = n_1n_2n_3N_3+1+n_1+n_1n_2 =$
$(234.472x245.813x257.252)(6.541172)+1+234.472+(234.472x245.813) = 97,044,120.93...$ for $\prod n_k = n_0n_1n_2n_3 = n_1n_2n_3$
...

Baryon-Dark Matter Intersection:

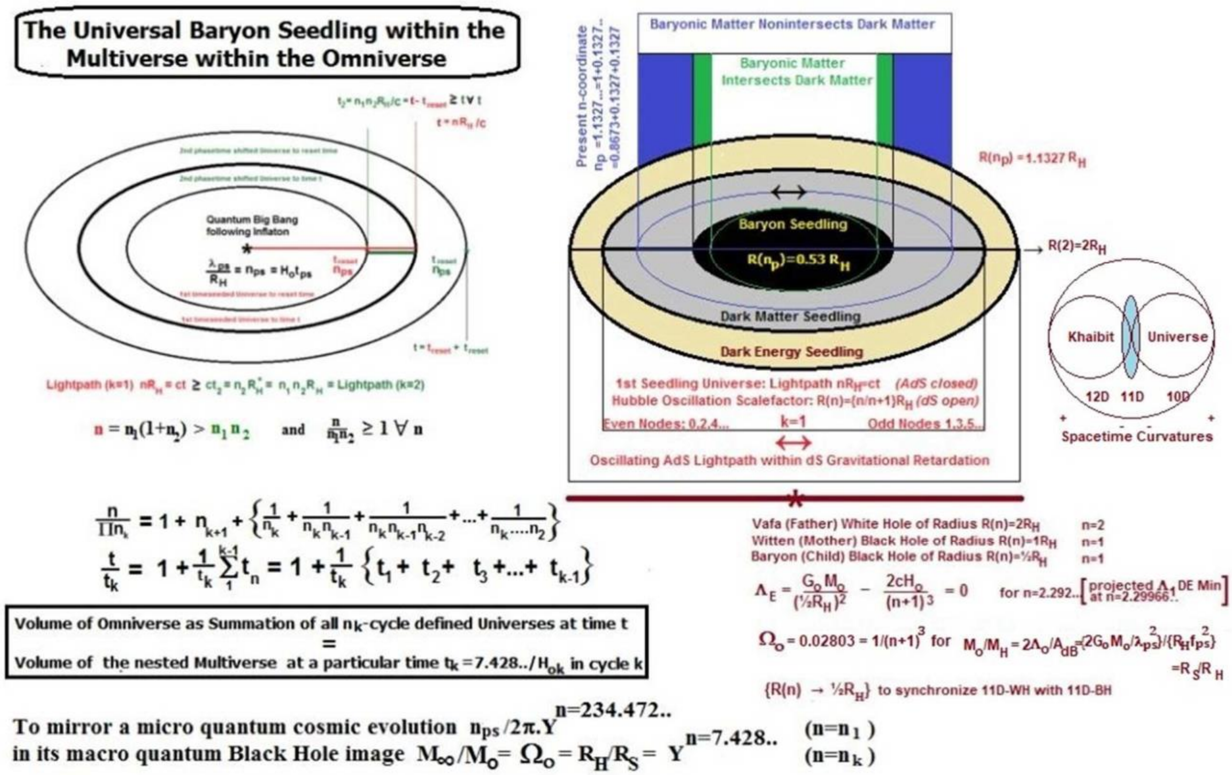
$N_k=\sqrt{2}$ for $n = \sqrt{2}.\Pi n_k + \Sigma\Pi n_{k-1}$

$n_0 = 1.\sqrt{2} + 0 = n_o$

$n_1 = n_1\sqrt{2} + 1 = 332.593 = n_1\sqrt{2} + 1$

$n_2 = n_1n_2 + 1 + n_1 = 81,745.461$

$n_3=n_1n_2n_3\sqrt{2} + 1 + n_1 + n_1n_2 = 21,026,479.35$



Hypermass Evolution:

$Y_{k\{(n-\Sigma\Pi nk-1)/\Pi nk\}} = 2\pi\Pi n_k.R_H/\lambda_{ps} = \Pi n_k.R_H/r_{ps} = \Pi n_k M_H{}^*{}_k/m_H{}^*{}_k$ for $M_H = c^2R_H/2G_o$ and $m_H = c^2r_{ps}/2G_o$

Hypermass $M_{Hyper} = m_H.Y_{k\{(n-\Sigma\Pi nk-1)/\Pi nk\}}$

$...= Y^n = Y^{([n-1]/n1)} = Y^{([n-1-n1]/n1n2)} =...$

k=0 for $M_{Hyper} = M_H = 1.M_H = m_H.Y^{\{(n)\}}$ with

$n = 1.\{\ln(2\pi/n_{ps})/\ln Y\} = n_1$

= 234.472

k=1 for $M_{Hyper} = n_1.M_H = M_H{}^* = m_H.Y^{\{(n-1)/n1\}}$ with

$n = [1] + n_1.\{\ln(2\pi n_1/n_{ps})/\ln Y\} = [1] + n_1n_2$

= 1 + 234.472x245.812 = 57,637.03

k=2 for $M_{Hyper} = n_1 n_2.M_H = M_H{**} = m_H.Y^{\{(n-1-n1)/n1n2\}}$
with $n = [1 + n_1] + n_1 n_2.\{\ln(2\pi n_1 n_2/n_{ps})/\ln Y\} = [1 + n_1] + n_1 n_2 n_3$
= 235.472 + 234.472x245.812x257.251 = 14,827,185.4

k=3 for $M_{Hyper} = n_1 n_2 n_3.M_H = M_H{***} = m_H.Y^{\{(n-1-n1-n1n2)/n1n2n3\}}$

with n = with $n = [1 + n_1 + n_1 n_2] + n_1 n_2 n_3.\{\ln(2\pi n_1 n_2 n_3/n_{ps})/\ln Y\} = [1 + n_1 + n_1 n_2] + n_1 n_2 n_3 n_4$
= 57,871.74 + 234.472x245.812x257.251x268.785 = 3,985,817,947.8

The Friedmann's acceleration equation and its form for the Hubble time derivative from the Hubble expansion equation substitutes a curvature k=1 and a potential cosmological constant term; absorbing the curvature term and the cosmological constant term, which can however be set to zero if the resulting formulation incorporates a natural pressure term applicable to all times in the evolvement of the cosmology.

Deriving the Instanton of the 4D-dS Einstein cosmology for the Quantum Big Bang (QBB) from the initial-boundary conditions of the de Broglie matter wave hyper expansion of the Inflaton in 11D AdS then enables a cosmic evolution for those boundary parameters in cycle time $n=H_o t$ for a nodal 'Hubble Constant' $H_o=dn/dt$ as a function for a time dependent expansion parameter $H(n)=H_o/T(n)=H_o/T(H_o t)$.

It is found, that the Dark Matter (DM) component of the universe evolves as a function of a density parameter for the coupling between the inflaton of AdS and the instanton of dS space times. It then is the coupling strength between the inflationary AdS brane epoch and the QBB dS boundary condition, which determines the time evolution of the Dark Energy (DE). Parametrization of the expansion parameter H(n) then allows the cosmological constant term in the Friedmann equation to be merged with the scalar curvature term to effectively set an intrinsic density parameter at time instantaneity equal to $\Lambda(n)$ for $\Lambda_{ps}=\Lambda_{QBB}=G_o M_o/\lambda_{ps}^2$ and where the wavelength of the de Broglie matter wave of the inflaton λ_{ps} decouples as the Quantum Field Energy of the Planck Boson String in AdS and manifests as the measured mass density of the universe in the flatness of 4D Minkowski spacetime.

The lower dimensional light path x=ct in lightspeed invariance $c=\lambda f$ so becomes modular dualized in the higher dimensional light path of the tachyonic de Broglie Inflaton-Instanton $V_{debroglie}=c/n_{ps}$ of the Inflaton.

$\{(2-n)(n+1)\}^3/n^3 = V_{dS'}/V_{dS}$ ......(4.36038 for $n_{present}$) in the first completing Hubble cycle $n^3/(2-n)^3 = V_{AdS}/V_{dS'}$ .... (2.22379 for $n_{present}$) in the first completing Hubble cycle $(n+1)^3 = VA_{dS}/V_{dS}$ ....(9.69657 for $n_{present}$) in the first completing Hubble cycle

$\rho_{critical} = 3H_o^2/8\pi G_o$ {Sphere} and $H_o^2/4\pi^2 G_o$ {Hypersphere-Torus in factor $3\pi/2$, the boundary for the Feigenbaum Chaos constant δ_F=4.6692...} (constant for all n per Hubble cycle)

$\rho_{critical} = 3.78782x10^{-27}$ [kg/m^3]* and $8.038003x10^{-28}$ [kg/m^3]*

$\rho_{dS}V_{dS} = \rho_{dS'}V_{dS'} = \rho_{AdS}V_{AdS} = \rho_{critical}V_{Hubble} = M_{Hubble} = c^2R_H/2G_o = 6.47061227x10^{52}$ kg*

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

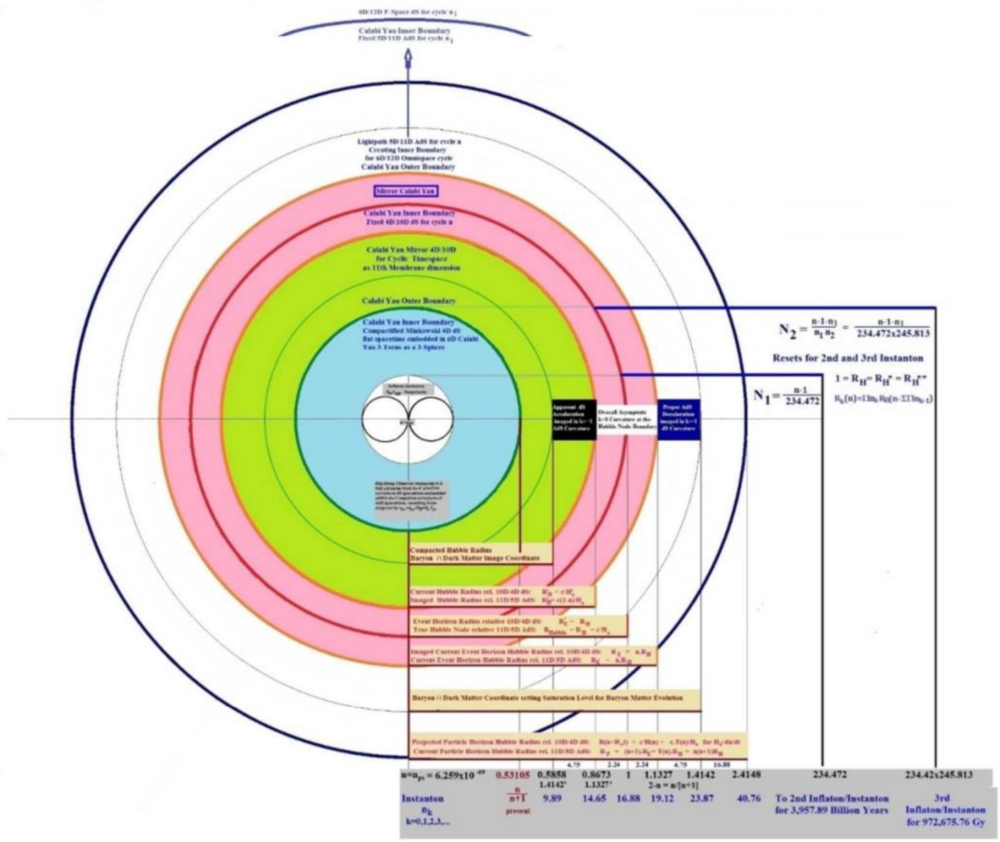
$\Lambda_k(n) = G_oM_o/R_k(n)^2 - 2cH_o(\Pi n_k)^2/\{n-\Sigma\Pi n_{k-1}+\Pi n_k)\}^3$ and where $\Pi n_k = 1 = n_o$ for k=0

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

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

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

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



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