THE PROOF OF THE INTEGRATION OF LAMB'S WAVELENGTH AND THE QUANTUM CONSTANT ($\phi = h/2e$) FOR THE MAGNETIC GRAVITY DRIVE OF THE DARK MATTER SUPER MASSIVE BLACK HOLES

Introduction

The dark matter super massive black hole M_{40} having a mass of $4.4587\ 10^{40}$ kg, is the onset for the sequential release of white radiators converting into super massive black holes for our steady state cosmos. The number of these released is $1.41226\ 10^{11}$ galaxies very much exceeding the age of the universe. At the onset, as a guess, was contracted in inertia dense dark matter slowing down the expansion in such a manner that the overall sequence time was highly reduced forming spatial space in the order of a radius of 2300 light years and a guessed expansion of 10 m/sec. Ref 5

How the mass of M_{40} was derived is not relevant here. Only note that the Monster symmetry integer number of $8.0\ 10^{53}$, mathematically determined by group symmetric theory, was involved.
Ref 1 and Ref 4

Par 2 The momentum balance between gravity and angular momentum for the hollow black holes

The exercise is to show the validity of the momentum balance for the weak gravity condition between the angular and gravity momentum even for a super massive black hole. In the solar calculations ref 2 at present-day it was discovered that the dark matter radius of the mediating medium for angular momentum coincided with the outer radius in equivalence to a string of electrons subjected to the radial gravity momentum. So the equivalence became the equality to calculate the steady state condition for dynamic gravity generation between the radial momentum for gravity and angular momentum.

The equality is: $(g\ h/c)\ N = m_e\ 2\pi\ c/\sqrt{\lambda}\ R$

The gravity force g is at the outer radius of the sun, m_e the electron, $\sqrt{\lambda}$ is the square root of the event because the macro mass M is split by dynamic coherent alternation into $\sqrt{M}$ as per Sacharov's law of dark matter induction. The parameter (h/c) is the gravity force equivalent to the angular momentum. N is the number of mediating atoms (corresponding electrons) in coherence forming the dark matter cells of $\sqrt{\lambda}$ –frequency. For other macro mass conditions the outer radius does not coincide with the dark matter radius R in the entanglement relation and is always much smaller than the outer radius.

Note, in above balance the parameters λ and R are not corrected for time dilation and Lorentz contraction for the maximum momentum of the medium of $\frac{1}{2}\ c_{eff}$.

For the black hole condition the electron rest mass has to be replaced by the mediating mass of the proton and electron, the coherent state of degeneration of atoms in general converting from the normal state to the one into conjugation. The axial force of as well the strong as the weak force within proton and electron respectively, represent two opposite acceleration vector components of the pseudo vector cells making supposedly conjugation on the electric charge possible. In fact conjugation is defined as a charge swap of a particle maintaining the same spin.

The validity of the conjugation is expressed in the substitution equality for the mediating mass:

$1 / 1837.153 + 1/250.8082 = 1 /220.6808$ (related to the electron rest mass)

With 1837.153 the H atom rest mass, 250.8082 the mediating mass and 220.6808 the conjugated state of the atom in terms of the mediating medium. The mediating mass: ($m_m^2 = \frac{1}{4}\ m_{at}$ 137.036). With 137.036 the reciprocal fine structure of the electron with respect to the Fermi spin.

Take the mediating mass ($m_m\ m_e\ c^2$):

$250.8082 \times 9.109\ 10^{-31}\ c^2\ (1.136520 - 1) = 2.80150\ 10^{-12}$ Joule (b1)

Determining the additional energy for conjugation. With 250.8082 /220.6808 = 1.136520

The ratio between the normal state and conjugation is: $2.80150^{-12} /3.4694\ 10^{-19} = 8.0749\ 10^6$ (b2)

Hartree potential $W_H = 4.35975\ 10^{-18} /4\pi = 4.694\ 10^{-19}$ joule.

A dive in the unknown divides the Hartree potential by 4π because of the conversion between cubic and spherical symmetry to be mended. It turned up completely different and by trial and error was needed to get the driving ratio improved in par 3 this is remedied by using the solar $C_g = 7.88\ 10^{-28}$ (Tesla^2 m)

The following is the kinetic magnetic energy in relation to the Hartree potential of the H- atom.

Quantum flux $\phi = h /2e = 2.06798\ 10^{-15}$ Weber

With the vacuum permeability $\mu_o = 4\pi\ 10^{-7}$

Hartree potential $W_H = e^2 /(4\pi\ \varepsilon o\ a_o) = 4.35975\ 10^{-18}$ joule

Bohr radius $a_o = (h /\alpha)(1 /4\pi\ m_e\ c) = 5.29177\ 10^{-11}$ m

Calculate the maximum kinetic energy of the electron for the angular momentum:

$W_k = ½\ m_e\ v^2$ $2\pi\ a_o\ v = h$ $h/2\pi = 1.054\ 10^{-34}$ $m_e = 9.109\ 10^{-31}$ kg

$v = 2.183\ 10^6$ m/sec and $W_k = 2.170\ 10^{-18}$ J

Express everything in magnetic joules:

$C_{kin} = \mu_o\ W_k = 2.735\ 10^{-24}$ mag J then also $C_H = \mu_o\ W_H = 5.4786\ 10^{-24}$ mag J

with an obvious factor 2 between these two.

Calculate the limit for the magnetic induction B in Tesla from the quantum flux constant including Lamb's shift of $5.060157\ 10^{-7}$ m:

$B = \phi /\mu_o = 1.6455\ 10^{-9}$ Tesla $\phi\ \lambda_l = (1.6455\ 10^{-9})^2 \times 5.060157\ 10^{-7} = 1.37\ 0\ 10^{-24} = C_{lim}$

Initially the flux divided by the vacuum permeability was a guess and not understood but in par 3 the it became clear. The constant C_{lim} has the same dimension as in mag J.

The ratio between $C_H /C_{lim} = 4$ due to the definition $\phi = h /2e$ and the classic half of kinetic energy.

As before in dynamic gravity generation, the mediating dark matter medium, the macro mass is separated into two or three atomic states subjected to the square root rule of the event wavelength controlling the electromagnetic energy drive. One of the fast states relaxates to the inertia condition of the atoms while the other becomes active. Both states are subjected to the product rule of the two or three states due to the division of the macro mass into two parts of √M. The fast states are due to the magnetic Lamb shift excitation coherent in such a manner that the dark matter state behaves as a rigid rotor.

Note, compared to the solar calculations the mediating mass is leading the angular momentum instead of using the electron solely the mediating mass ratio of 250.8082 is used. It was not realised that the term of (1.136520 – 1) = 1 /7.325 the reciprocal of 1837.153 /250.8082 belongs to the substitution conjugation.

Par 3 The actual momentum calculations for the hollow black holes in general

At a guess, all black holes consisting of degenerated dark matter in coherence have a minimum outer radius of 4λ with λ the event wavelength and 2λ the inner radius. At the event radius internally the electromagnetic interference for the sphere is generated maintaining the loss less or nearly lossless dynamics of alternation between the mediating ultra fast coherent states. It seems likely the incident propagation of too and from the 2λ radius is always 45° with respect to either side of an outgoing radius from the centre.

It is only due to the black hole calculations for M_{40} that as well as the conversion energy due to conjugation together with the requirement of 4λ outer radius turned out to be the proper choice to set up the BH parameters for the hollow super massive black holes. The 4λ-radius was a supposition but derived in par 5 to par 6. It seems also possible, the equilibrium dark matter black hole can contract to 3λ as a minimum. The event of three or four is not important. These scaling calculations with the aim

the proof ϕ and lamb's shift are fundamental for the weak gravity condition of gravity generation by a mediating rarefied dark matter medium.

The calculation of the momentum balance between gravity and angular momentum:

(g h/c) $N = 251 \times 9.109\ 10^{-31}\ (2\pi/\sqrt{\lambda})\ R^n$ N: number of coherent mediating atoms

The dark matter radius R coincides with the outer radius. Most times the dark matter radius R can be Of the power n = 1 or n = 2.

For rotation, the dark matter impulse frequency has to be in equilibrium to the inertia rotation of the BH macro mass:

$½\ M\ c^2 = 4/10\ M\ \omega^2\ (16\ \lambda^2 - 4\lambda^2) = 4.8M\ \omega^2\ \lambda^2$ .While a solid sphere is $6.4M\ \omega^2\ \lambda^2$.

Where $(16\ \lambda^2 - 4\lambda^2)$ inertia momentum of a hollow sphere. Knowing the M and λ , the cycle frequency ω can be calculated. The parameters λ and R are not corrected for time dilation and Lorentz contraction due to the maximum momentum of the mediating medium of $½\ c_{eff}$.

Used constants:

All parameters as macro masses and others are :

$G = 6.67233\ 10^{-11}$ ($m^3/kg\ sec^2$) $c = 2.997246\ 10^8$ m/sec $c^2/G = 1.34\ 6378\ 10^{27}$

Uncertainty condition: $h/c = 2.2100\ 10^{-42}$ $\mu_o = 1.25664\ 10^{-6} = 4\pi\ 10^{-7}$

The hollow super massive black hole M_{40}

$M_{40} = 4.4587\ 10^{40}$ kg $\lambda_o = 3.3116\ 10^{13}$ m $g = GM/\lambda^2 = 2.713\ 10^3\ m/sec^2$

$\omega = 2\pi\ c/\sqrt{\lambda_o} = 327.23$ cycles/sec $\lambda_o^3 = 3.3632\ 10^{40}\ m^3$

Number of mediating atoms: $N_o = 4.4587\ 10^{40}/250.8082 \times 9.109\ 10^{-31} = 1.95162\ 10^{68}$

$\sqrt{N_o} = 1.3970\ 10^{34}$ Sacharov's law as maximum separation for dynamics.

Momentum equality: ($R = \lambda_o$) (g h/c) $N = m_e\ 2\pi\ c/\sqrt{\lambda_o}\ R$

g h/c = $5.9952\ 10^{-39}$ $N = 250.8082 \times 9.109\ 10^{-31} \times 327.23 \times 3.3116\ 10^{13} = 2.4757\ 10^{-12}$

$N = 4.1295\ 10^{26}$ Accelerated mediating cells converting into angular momentum.

The calculation for mediating mass and Lamb shift of respectively 251 and $5.1\ 10^{-7}$ is as follows:

The magnetic energy constant $C_g = 7.88\ 10^{-26}$ mag joules is used in the solar calculations based on Lamb shift of $\lambda_l = 5.1\ 10^{-7}$ m per H atom given by $C_g = 7.88\ 10^{-26} = B^2\ \lambda$. Then calculate B as the magnetic induction in Tesla per cubic meter giving the magnetic density D_B.

The reciprocal of $(5.1\ 10^{-7})^3$ is used in C_g :

$D_B = \sqrt{\{(7.88\ 10^{-26} \times (5.1\ 10^{-7})^3\}} = 1.0224\ 10^{-22}$

Applied to fully magnetized mass $M_{40} = 4.4587\ 10^{40}$ kg

$\mu_o\ M\ c^2 = B^2\ \lambda_o^3$ $5.0334\ 10^{51} = B^2\ 3.632\ 10^{40}$ $B_{max} = 3.723\ 10^5$ Tesla

So $D_B = B/N = 1.0224\ 10^{-22}$ with $B_{max} = 3.723\ 10^5$ T then $N = 3.641\ 10^{27}$ mediating cells residing in M_{40} below $\sqrt{N_o}$.

To compare with $\sqrt{N_o}$ gives the ratio of the numbers of cells: $1.397\ 10^{34}/3.641\ 10^{27} = 3.84\ 10^6$ making to the drive ratio (b2) = $8.0749\ 10^6$ a factor of (2.10) less than possible for the maximum conjugated energy.

Taking the maximum drive $1.397\ 10^{34}/8.075\ 10^6 = 1.73\ 0\ 10^{27} = N_{max}$ giving to $D_B = 1.0224\ 10^{-22}$ the magnetic B = $1.769\ 10^5$ Tesla which is used for $5.0334\ 10^{51} = (1.769\ 10^5)^2 \times \lambda_l^3$

To determine $\lambda_l = 5.439\ 10^{13}$ m. And the ratio to the event $\lambda_o = 3.3116\ 10^{13}$ is 1.642. It shows that the apparent λ_l can be corrected in the rotation of the BH: (λ_o event of hollow and solid BH)

$½\ c^2 = (\omega_o\ \lambda_o)^2 = 4.8\ (\omega_h\ \lambda_o)^2$ then $\omega_h^2 = (1/4.8)\ \omega_o^2$ $\omega_s^2 = (1/6.4)\omega_o^2$

$(\omega_1\ \lambda_1)^2 = 1.692^2\ (\omega_1\ \lambda_o)^2$ then $\omega_1^2 = (1.642^2/4.8)\ \omega_o^2 = (2.70/4.8)\ \omega_o^2 < \omega_o^2$

The hollow configuration has a smaller inertia momentum than the solid state and ω = 6.4 /4.8 smaller. So if the angular velocity increases too much then it destructs the inertia momentum due to ω comes to close $½\ c^2$ energy. But because the magnetic dipole field decreases with the enhanced drive to maximum of the ratio of $8.075\ 10^6$ (b2), then equilibrium is possible as long as this is below this ratio.

The first trial result

The following was the discovery of the link of ten between the black holes in different universes in the phase space of time, is an unexpected bonus shown in *three steps of results*.

The next step is to calculate for $\lambda_1 = \lambda_o$ of the event with $B_{max} = 3.723\ 10^5$ T and $N_{max} = 1.730\ 10^{27}$ N_{max} for the maximum drive has a smaller number of cells than the $N = 3.641\ 10^{27}$ cells of above.
Working backward to find the new C_{BH} :

$D_B = 3.723\ 10^5 / 1.730\ 10^{27} = 2.152\ 10^{-22}$ $\quad C_{BH} = D_B^2 / (5.1\ 10^{-7})^3 = 3.491\ 10^{-25}$ mag J

Take the kinetic magnetic energy $C_{kin} = 2.735\ 10^{-24}$ and the kinetic magnetic limit $C_{lim} = 1.370\ 10^{-24}$ in mag Joules calculated in par 2 and related to the drive ratio of $8.0479\ 10^6$:

Ratios $2.735\ 10^{-24} / 3.491\ 10^{-25} = 7.8344$ $\quad$ and $\quad 1.37\ 10^{-24} / 3.491\ 10^{25} = 3.942$

Both $3.942 \times 2 = 7.894$ $\quad 7.894 / 7.8344 = 1.001914$

Note that the ratio between C_{kin} and C_{lim} is a factor of two. So this deviation of 1.001914 is a fool's result!

Repetition of the calculation with drive ratio by dividing by a factor eight instead of 4π (in par 2).
Hartree $W_H = 4.35975\ 10^{-18} / 8 = 5.4497\ 10^{-19}$ J giving with the mediating mass deviation (b1) the ratio $2.80150\ 10^{-12} / 5.45\ 10^{-19} = 5.141\ 10^6$. This result gives the understanding for a second trial.

The second trial result

Take $\lambda_1 = \lambda_o$ for the event $\quad B_{max} = 3.723\ 10^5$ Tesla $\quad$ and $\quad C_{lim} = 1.370\ 10^{-24}$ mag J

Calculate $\quad D_B = \sqrt{\{(1.370\ 10^{-24})^2 \times (5.1\ 10^{-7})^3\}} = 4.263\ 10^{-22}$ Tesla /m^3

$N_{max} = B / D_B = 3.723\ 10^5 / 4.263\ 10^{-22} = 8.733\ 10^{26}$ cells

Giving with $\sqrt{N_o}$ the driving ratio: $\quad 1.397\ 10^{34} / 8.733\ 10^{26} = 1.5996\ 10^7\ (1.60\ 10^7)$

The mediating mass deviation (b1): $\quad 2.8015\ 10^{-12} / 1.6\ 10^7 = 1.751\ 10^{-19}$ J

Compare to kinetic energy Hartree/ 2 = $2.170\ 10^{-18}$ J $\quad 2.170\ 10^{-18} / 1.651\ 10^{-19} = 12.39$

$C_{BH} = C_{kin} / 12.39 = 2.375\ 10^{-24} / 12.39 = 1.9169\ 10^{-25}$ mag J .

This result can only be explained by assuming the ten universes should display an exchange link to the other sequential super massive black holes.
Namely

The factor $4/3 \times 10 = 13.333 / (4/3)^{1/4} = 12.40807$ $\quad$ with $\quad (4/3)^{1/4} = 1.074569$

Although 12.39 is comparable, the accuracy of the above results one and two are about 1% . The guess of the physics could be explained by the factor 4/3 because as well the magnetic and angular momentum in energy require together $4/3 = (1.154700)^2$ the relativistic constant for the electron m/m_o. It is difficult to understand why the factor of $\sqrt{4/3}$ is in the denominator, see follow up in par 4.

To check all numbers of the calculation, a listing of the slightly different numbers in the used parameters could be given.
Suffice to mention that instead of 12.39 the new figure is 12.495.

Then the ratio: $\quad 13.333 / 12.495 = 10.671$ $\quad$ worse than 10.7614

Divide by ten: $\quad 1.07614 / 1.074569 = 1.001466$ $\quad 1.074569 / 1.0671 = 1.00700$

The truncations show just within the limit of 1%.

That the factor ten as a supposition in ref 4 etc. is used, confirmed nicely but of all these scaling calculations it should have been obvious that the choice for the mass number of M_{40} should have to be led down to this requirement. The point was it was never expected. So a very pleasant surprise to know the weak gravity theory for dark matter seems physically correct.

Par 4 Show that the results one and two give the correct approach to come to the final proof.
The magnetic energy constant C_g for m_m and λ : $C_g = B^2 \lambda = 7.88\ 10^{-26}$ mag J

Calculate v_e from the angular momentum

$2\pi a_o = h / (m_e v_e)$ $\quad v_e = 2.183\ 10^6$ m/sec $\quad (h/2\pi) = 1.054\ 10^{-34}$ joule /sec

With Bohr's radius $a_o = 5.292\ 10^{-11}$ m $\quad$ and $\quad m_e = 9.109\ 10^{-31}$ kg

$C_{kin} = \frac{1}{2}\ \mu_o\ m_m\ m_e\ v_e^2 / m_m^2 = \frac{1}{2}\ \mu_o\ m_e\ v_e^2 / m_m$ $\quad 2.735\ 10^{-24} / C_g = 34.71 = m_m$

Here m_m is not 251 giving the ratio 251 /34.7 = 7.234 close to 1837.153/251 = 7.325

Just by this guess, the constant C_g worked for the solar discovery where the dark matter radius was equal to the outer radius of the sun and conjugation inversion to the substitution of:
` 1 /1837.153 – 1 /250.8082 = 1 /220.6808. Only remember the solar angular momentum equality worked with a sole electron as mass in the rotation.

Reconsider the mediating deviation (b1) given by the mediating mass (m_m m_e):
250.8082 x 9.109 10^{-31} c^2 (1.136520 – 1) = 2.80150 10^{-12} Joule (b3)
The reciprocal of 0.136520 = 7.325. Apparently also due to the substitution relation are identical:
1 / 1837.153 + 1/250.8082 = 1 /220.6808
So valid is always exactly valid m_m = 250.8082 /7.325 = 34.24002

Do the same for $C_{lim} = (\phi /\mu_o)^2 \lambda_l$ = 1.370 10^{-24} mag J v_e = 2.183 10^{-6}
Define m_x : C_{kin} = ½ μ_o m_x m_e v_e^2 /m_x^2 = ½ μ_o m_e v_e^2 /m_x
Then the term (v_e^2 /m_x): : v_e = 2.183 10^6 m/sec as above.
Now from the first result the understanding is that: m_x = 7.8344
Not just understood before but for C_{lim} then m_x = 2.0 twice the electron mass.
The second result gives the insight of m_x = 13.333 /1.074569 = 12.40807
With $(4/3)^{1/4}$ = 1.074569.
But considering that the electron should cater for as well as the angular and forward magnetic momentum, then m_x = 13.333 / 1.074569^2 = 11.74569. So these results of calculations tend to be dead ends. However let us return to Planck's parameters of the inversion parameters in (ref 4)

Firstly, give the inversion equalities Planck length and electron Compton length:
$\lambda_{pl} = 1.002490 \times 2\sqrt{2}\, \lambda_e^3$
Followed as a consequence Planck's mass to electron mass:
$m_{pl} = 1.766053\ m_e^{1/4}$ guessed $m_{pl}^4 = m_M^3\ m_e$ $m_M^3 = C_4$ [kg^3]
With $C_4 = 1.766053^4$ = 9.727827 m_M = 2.134708 [kg]
The importance is the C_4 constant of 9.72783. Another C_4 = 9.7286 and m_M = 2.134765 slightly more updated giving a calculation error of 1.000079. Here the older one is used, working out somewhat unfavourable.

As the above choice for the ten did not work out, use as upper limit $(10 \times 4/3)^{1/4}$ = 10.74569 and as lower limit the factor eight because $\sqrt{8} = 2\sqrt{2}$ in Planck's relations.
10.74569 /9.72783 = 1.104633 1.050818^2 = 1.104218 ratio 1.000376
9.72783 /8 = 1.215978 1.050818^4 = 1.215978 ratio 1 / 1.000276
1.050818 = 144 /137.036 division by reciprocal fine structure constant.
Take m_M = 1.134708 and to be compared to (1.136520 – 1) = 0.136520 reciprocal 7.235
See above (b1) and (b2)
Reciprocal of 0.134708 7.423464 250.8082 / 7.423464 = 33.78578
While 250.8082 /7.325 =34.24002 proton 1837.153 /7.325 = 250.8082
Ratios to electron mass. The factor 2 in m_M in C_{lim} is explained in par 5.

Compare division and product and the other deviations:
9.72783 /7.423464 = 1.310416 9.72783 x 7.42346 = 72.21419 x 2 = 144.4283
144.4283 / 144 = 1.0002974 /1.0002453 = 1.000520
Ratio 34.24002 /33.78587 = 1.013441^2 = 1.027062 10.0 /9.72783 = 1.027978
giving ratio 1.000891 1.000520 x 1.000377 = 1.000897
And 10.74569 /7.325 = 1.466988 /1.310416 = 1.119482 /1.013441 x 1.050818^2 = 1.000377

Note, $\sqrt{(1728)}$ /4 = 10.39230 does not work out as the factor ten for the universes:
10.39230 / 9.72783 = 1.068306 10.74569 /10.39230 = 1.034004^2 = 1.069166

The final magnetic constants
For normal gravitation the magnetic constants
$C_g = C_{kin} /m_x$ = 2.735 10^{-24} /33.78587 = 8.0951 10^{-26} mag J (originally 7.88 10^{-26})

$D_{Bg} = \sqrt{\{C_g\ (5.1\ 10^{-7})^3\}} = 1.0363\ 10^{-22}\ T/m^3$

For the black hole condition reaching marginal equilibrium to the external dark matter environment

$C_{BH} = 2.735\ 10^{-24} /9.72783 = 2.81152\ 10^{-25}$ mag J

$D_{BH} = \sqrt{\{C_{\mathbf{BH}}\ (5.1\ 10^{-7})^3\}} = 1.931\ 10^{-22}\ T/m^3$

Both correspond to Planck's inversion equalities. Ratio: $(1.931 /1.0363)\ 10^{-22} = 1.864$ (b4)

As is understood, Cg derived from $m_x = 10.7459$ and C_{BH} from $m_x = 7.325$ does not look correct. However the physics should be enlightening and discussed in the next paragraph.

Par 5 The Cooper pair condition

The calculation of C_{lim} is four times smaller than Hartree's potential expressed in equivalence of magnetic energy and based on the product of the quantum flux and Lamb's shift given as $(\phi /\mu_o)^2\ \lambda_l$ .This could determine that with the classic velocity $(v_e /2)$ for $m_x = 2$ is carried by two synchronous electrons.

The other new insight is related to Planck's equalities. Here the mass of $m_M = 2.134708\ m_e$ reduces the by inversion to 33.78587 the electron mass. The coherence energy gap of 2.134708 – 2 has reciprocal 7.423464. Therefore the magnet gravity constant C_g should be determined by the coherence mass of 33.78587 m_e .Common sense dictates that coherence exchange between cell driven by the square root frequencies of the event wavelength are carried by Cooper pairs. So it seems the energy gap of (1 – 1 /34.2407) is superseded with 250.8082 / 7.325 = 34.2407 .

The transposition of the Cooper pair condition by coherence mass of 33.78587 seems now an absolute parameter and it looks like a contradiction.

Exercise the generalized H-atom condition for Helium: 1825.063 /249.9811 = 7.34022

Giving 249.9811 /7.30082 = 34.24034 making a very small deviation to hydrogen:

250.8082 /7.54931 = 34.24034

It means Cooper pair formation does not seem a paramount requirement. Apparently as a guess the Cooper pair condition is on the road to coherent degeneration for the dynamic dark matter state of black holes. In conclusion both gap relations can be valid, the one for normal atomic situations and the one approaching the matter degeneration of black holes.

Par 6.0 Examples of super massive black holes over the range of M_{40} to M_{35}

Par 6.1 Continuation of super massive black hole M_{40} .

What began in par 3 and ended as a start of the initial macro mass M_{40} in unexpected results, progressed as a proof that M_{40} is the right and proper WR/BH mass for the onset of the universes.

Copy from par 3 *The hollow super massive black hole M_{40}*

$M_{40} = 4.4587\ 10^{40}$ kg $\lambda_o = 3.3116\ 10^{13}$ m $g = GM /\lambda^2 = 2.713\ 10^3\ m/sec^2$

$2\pi\ c/\sqrt{\lambda} = 327.23$ cycles/sec $\lambda_o^3 = 3.3632\ 10^{40}\ m^3$

Number of mediating atoms: $N_o = 4.4587\ 10^{40} /250.8082 \times 9.109\ 10^{-31} = 1.95162\ 10^{68}$

$\sqrt{N_o} = 1.3970\ 10^{34}$ Sacharov's law as maximum separation for dynamics.

Momentum equality:

$g\ h/c = 5.9952\ 10^{-39}\ N = 250.8082 \times 9.109\ 10^{-31} \times 327.23 \times 3.3116\ 10^{13} = 2.4757\ 10^{-12}$

$N = 4.1295\ 10^{26}$ Accelerated mediating cells converting into angular momentum.

Calculate from $B_{max} = 3.723\ 10^5$ T the N_{max} belonging to $D_{Bg} = 1.931\ 10^{-22}\ T/m^3$ $(D_{Bg} = B /N)$

$N_g = 3.723\ 10^5 /1.931\ 10^{-22} = 1.928\ 10^{27}$ coherence cells.

Calculate similar with $D_{BH} = 1.063\ 10^{-22}\ T/m^3$

$N_{BH} = 3.723\ 10^5 /1.0363\ 10^{-22} = 3.593\ 10^{27}$ cells. Ratio is 1.864 between those but the smaller D_{BH} gives a higher number of cells. Tends to suggest a cross over condition.

Set up the momentum calculation for a 4λ black hole g'= g / 16 and λ' = 4λ:

$5.9952\ 10^{-39}\ N = 2.4757\ 10^{-12} \times 64$ $N = 2.645\ 10^{28}$

$D_{BH} \times N = B$ $B = 1.036\ 10^{-22} \times 2.645\ 10^{28} = 2.741\ 10^6 > B_{max} = 3.723\ 10^5$ T

Re do for $N_{BH} = 3.593\ 10^{27}$ for B_{max} and calculate the λ':

$6.0\ 10^{-39} \times 3.583\ 10^{27} = 7.482\ 10^{-26} \times \lambda'$ $\lambda' = 2.879\ 10^{14}$ m

$4 \times 3.312\ 10^{13} = 1.325\ 10^{14}$ m ratio 2.173

For N_g divide by 1.864:

$6.0\ 10^{-39} \times 3.563\ 10^{27} / 1.864 = 7.482\ 10^{-26} \times \lambda'$ $\lambda' = 1.545\ 10^{14}$ m

ratio: $1.17 > \sqrt{4/3}$ λ' is just somewhat longer but exceeds the $4\lambda_o$ limit.

As a guess it means M_{40} is always unstable and should relaxates to smaller super massive black holes.

By taking the B_{max} then N_g and N_{BH} are greater than $N = 4.13\ 10^{26}$ which suggests equilibrium for the actual event of M_{40} . Also the magnetic field is smaller $B = 7.98\ 10^4$ T ($3.323\ 10^5$ T) So nothing drives the relaxation of smaller super massive black holes. However in the formation of the dark matter cube of M_{40} the process of gravity generation erupts forming ablation layers of protons and electrons initiating gravity supposing at the moment of onset, no gravity happened. Whatever the physics, the violent process tends to drive to the maximum possible magnetic field preventing the equilibrium relaxation then it also required to increase the event horizon, the $4\lambda_o$-limit which seems only to hold for M_{40} .For smaller masses of the super massive black holes a $3\lambda_o$-limit might be valid. So if in general the four times event is reached then gravity goes down by factor 16 by going through the violent phase of maximum magnetic drive monitored by the magnetic density $D_{Bg} = B / N$ and ending up with a much smaller equilibrium magnetic field. In fact what is said is that relaxation happens as a natural process to the hollow geometry. Such a situation can only be imagined as no gravity generation ever existed around the spherical centre.

Note the two limits of D_{BH} and D_{Bg} of the magnetic density show that during the black hole formation the 3λ- or 4λ- limits can play an important role just to reach the situation passing first through the event of the black hole mass by maximum magnetic drive then relaxating to the equilibrium density at these limits with sometimes a far lower magnetic field. The max of $M c^2 / \mu_o$ is the parameter for B_{max} .Secondly it was shown that M_{40} seems to be the correct choice for the onset of the universes confirming the derivation based on the Monster integer of group symmetry theory. Actually, the mention of the magnetic field is always considered to be a dipole magnetic geometry.

Par 6.2 In the following some examples for the range of black holes using the older calculations for D_B instead of D_{BH} or D_{Bg} . From these calculations two drive limits are exposed. Not only B_{max} but the $\sqrt{N_o}$ can be a limit.

The super massive black hole M_{37}

$M_{37} = 7.273\ 10^{37}$ kg $\lambda = 5.4019\ 10^{10}$ m $g = G M / \lambda^2 = 1.66302\ 10^6$ m/sec^2

Vol = $\lambda^3 = 1.5763\ 10^{32}$ m^3 $2\pi c / \sqrt{\lambda} = 8.1027\ 10^3$ times $251 \times 9.109\ 10^{-31} = 1.8526\ 10^{-24}$

$1.8526\ 10^{-24} \times \lambda = g\ h/c = 3.675\ 10^{-36}$ N $N = 2.723\ 10^{22}$

$1.8526\ 10^{-24} \times \lambda^2 = 3.675\ 10^{-36}$ N $N = 1.4709\ 10^{33}$

$N_o = 7.237\ 10^{37} / 251 \times 9.109\ 10^{-31} = 3.181\ 10^{65}$ $\sqrt{N_o} = 5.6401\ 10^{32}$ $N(\lambda^2) > \sqrt{N_o}$

Magnetic energy volume for M_{37}:

$M c^2 \mu_o = B^2$ vol $6.2105\ 10^{48} = B^2 \times 1.5773\ 10^{32}$ $B = 2.2823\ 10^8$ T

B per m^3: $2.405\ 10^{-22} = B/N$ $N = 9.490\ 10^{29}$ So $N < \sqrt{N_o}$

Extend above to outer radius of 4λ then $g' = g / 16$ and $\lambda' = 4\lambda$

$3.675\ 10^{-36}$ $N' = 1.8526\ 10^{-24} \times 64\ \lambda$ $N' = 1.743\ 10^{24}$

$B = 2.405\ 10^{-22}$ $N' = 419.2$ T Closed hollow cube torus: vol = $(64 - 8)\lambda^3 = 56\ \lambda^3$

$B^2 / \mu_o\ 56\ \lambda^3 = 1.234\ 10^{45} < M c^2$ Joule. Magnetic max is always a factor μ_o smaller than the inertia energy in which $\{3/8\ M c^2 = 4/10\ M \omega^2 (16 - 4)\lambda^2$ rotation energy. The magnetic state internally is classic with velocities of hundred thousand metres per sec, far below the light speed. But the inertia rotation tends to be relativistic at the outer surface.

Re do above for $\sqrt{N_o}$:

$3.6753\ 10^{-36}$ x $5.6401\ 10^{32} = 1.8526\ 10^{-24}\ \lambda'^2$ $\lambda'^2 = 1.119\ 10^{21}$ $\lambda' = 3.345\ 10^{10}$ m
Where $\lambda' < \lambda$ which is allowed because $2\lambda < \lambda' < 4\lambda$ and resides in the spherical thick shell of dark matter. So the dark matter radius λ' allows frequency doubling. The relaxation state has gravity of $g' = g/16$ and the $\lambda' = 4\lambda$ as size.

The super massive black hole M_{35}
$M_{35} = 1.18645\ 10^{35}$ kg $\lambda = 8.812\ 10^{7}$ m $g = 1.0194\ 10^{9}$ m/sec^2
$g\ h/c = 2.253\ 10^{-33}$ $251 \times 9.109\ 10^{-31} \times 2\pi c/\sqrt{\lambda} = 4.587\ 10^{-23}$
$N_o = 5.1893\ 10^{62}$ $\sqrt{N_o} = 2.278\ 10^{31}$ $\lambda^3 = 6.843\ 10^{23}$ m^3
Momentum equality:
$2.253\ 10^{-33}\ N = 4.587\ 10^{-23}\ \lambda^2$ $N = 1.581\ 10^{26}$
Take the constant magnetic induction per m^3: $2.405\ 10^{-22} = B/N$ $B = 3.802\ 10^{4}$ T
Re do above momentum balance for $\lambda' = 4\lambda$, dark matter thickness of hollow sphere 2λ :
$(2.253\ 10^{-30}/16) \times N' = 4.587\ 10^{-23} \times 4\ \lambda^2$ $N' = 64 \times 1.581\ 10^{26} = 1.012\ 10^{28}$
$N' < \sqrt{N_o}$ $B^2/\mu_o\ 56\ \lambda^3 = 4.41\ 10^{40}$ Joule torus volume: $(64 - 8)\lambda^3$
Again frequency doubling is possible. No magnetic flux conservation applied. Torus geometry is lossless to the outside 'world'.

Calculate the inertia rotation frequency: (3/8 = ½ x ¾)
$3/8\ M\ c^2 = 4/10\ M\ \omega^2\ (16 - 4)\lambda^2$ $\omega = 11.6$ cycles per sec
Compared to $(c/4\lambda)^2 = 1.51\ 10^{-10}$ sec or 6.6 2 G Hz of the fast impulses generated by the dark matter double rotation rotor which is contracted in the dynamics of the coherent cells of the 2λ layer inside the outer radius of 4λ.

The Sun contracted as a hollow black hole
$M = 2\ 10^{30}$ kg $\lambda = 1500$ m $g = G\ M/\lambda^2 = 5.931\ 10^{13}$ m/sec^2 $g\ h/c = 1.311\ 10^{-28}$
$\omega = 2\pi\ c/\sqrt{\lambda} = 4.871\ 10^{7}$ cycles /sec $251 \times 9.109\ 10^{-31}\ \omega = 1.114\ 10^{-20}$
$N_o = 2\ 10^{30} / 251 \times 9.109\ 10^{-31} = 8.748\ 10^{57}$ $\sqrt{N_o} = 9.353\ 10^{28}$

The magnetic induction constant per m^3 for $\sqrt{N_o}$:
$2.405\ 10^{-22} = (1/9.353\ 10^{28})B_{max}$ $B_{max} = 2.250\ 10^{7}$ Tesla
$B_{max}^2/\mu_o \times 1500^3 = 1.351\ 10^{30}$ Joule torus volume multiply by 56
Note, magnetic flux conservation for torus expansion.

By trial and error, take $R_5 = 6000^5 = 7.776\ 10^{11}$ as frequency multiplier for the dark matter radius.
$1.311\ 10^{-28}/16\ N_5 = 1.14\ 10^{-20}\ R_5$ $N_5 = 1.057\ 10^{28} < \sqrt{N_o}$
Ratio $N_5/\sqrt{N_o} = 8.847$ $1.5465^5 = 8.847$ $1.5465/1.5 = 1.0310$ $(1.0310^2 \times 1728)$
Again $2.405\ 10^{-22} = (1/1.057\ 10^{28})B'$ $B' = 2.543\ 10^{6}$ Tesla $B' < B_{max}$ .The Sun's mass is about the minimum macro mass for a black hole. The deviation of 1.0310^2 multiplied by the quark cell is allowed especially since the sun is the smallest black hole in nature also accepted in relativistic physics.

Calculate Earth's condition of size of radius 610^6 m for the sun as hollow coherent degenerated mass
$g = 3.707\ 10^{6}$ m/sec^2 $g\ h/c = 8.192\ 10^{-36}$
$8.192\ 10^{-36}\ \sqrt{N_o} = 1.114\ 10^{-20}\ R^2$ $R^2 = 6.88\ 10^{13}$ $R = 8.293\ 10^{6}$ m $> 610^6$ m
For $R = 6\ 10^{6}$ m then $N' = 4.896\ 10^{28}$ mediating cells $< \sqrt{N_o}$

Also B_{max} is allowed
$B_{max}^2/\mu_o\ (6\ 10^6)^3 = 8.70\ 10^{40} < (1.8\ 10^{47} = M\ c^2)$ Joule
So it shows that the contraction of the dark matter radius to the fifth power is highly unlikely. To prove that only the 2nd power for the dm radius is valid in general, is more difficult.

Par 7 Conclusion and comments
Par 7.1 Conclusion
The magnetic constants C_{BH} and C_{Bg} found a meaning through C_{lim} based on the parameter

$\{(\phi/\mu_o)^2 \lambda_{lamb}\}$. It elevates Lamb's shift and the quantum flux to the fundamental physics constants for the weak gravity theory based on the mediating dark matter medium. It does not explain, this medium should exist as pseudo vector neutrinos, but in the sense of quantum mechanics the medium can be defined by these two constants. The so-called sea of relativistic electrons surrounding the atom. Although clearly the dark matter medium behaves is rarefied and highly not relativistic and purely behaved in a classic manner.

The other part of these paragraphs is the onset of the mass of M_{40} for the generation of the universes, correct or not, it is somewhat less convincing, although the Monster integer was used to determine the mass of M_{40}. Beautifully is the connection between the simultaneous onset of the paired supper massive WR/BH of M_{40} demonstrated by the factor 10 $(\sqrt{4/3})^{1/4}$ in the calculation making it possible for a distinction between coherent degenerated dark matter, the coherent conjugated state, and the atomic coherence for gravity generation in 'normal' stars of planets not yet contracted to black holes. The factor ten was a supposition for the universes in ref 4 .

Par 7.1 Comments:
Par 3 to 6 reflects the struggle to come to an understanding. It is a consequence of different subjects coming together. Excuses for not rectifying the manner in which the paragraphs are written. Rewriting was not an option due to the age of the author.

Why is the classification for the super massive black holes between M_{40} and M_{35} not based on $M_{35}' = c^3/G$ with the event of λ having the value of c in meters? The ratio M_{35}'/M_{35} is about 3.4. The reason is that the number of galaxies is based on M_{40} which would give a shift of 3.4 in macro mass. This in turn would influence the number of galaxies while this number was discovered to correlate with the qubit number of 2^{40} per meter for the electron. *See ref 1.*

In the above paragraphs the first step of the validity for the weak gravity condition for black holes has been shown. The dynamics, Sacharov's square root law, of the dark matter rigid rotors due to atomic coherent magnetization, has not yet been planted. For normal gravity situations the electron is driving the coherent states of the rigid rotors consisting of the ultra fast mediating dark matter. The dynamic parameters then are: $\sqrt{2}$, $\sqrt{3/2}$, $\sqrt{4/3}$ compromising the square root frequencies of the event wavelength and the angular momentum up to the square power of these numbers for energy. In total a matrix of nine elements in which combinations for the escape velocity and the boundary condition can be made. *Ref 3.* Due to the conservation of angular momentum and magnetic flux conservation of the hollow structure of the huge macro masses, the spontaneous contraction to the super massive black holes can be expected. For the conjugated state of these masses the dynamic matrix of the nine parameters is guessed to be: $\sqrt{3/2}$, $\sqrt{4/3}$, $\sqrt{1.136520}$. The last is the mediating mass ratio of 250.8082 / 220.6808 as mentioned above. Apparently the huge masses generate a preference for the two conjugated states in the BH, namely $(\sqrt{1.5})^{1/3} = 1.144714$
$1.144714 / 1.13652 = 1.007209$ and $(\sqrt{4/3} = 1.154700) / 1.144714 = 1.008723$
The fine structure constant: $(1 + 1/137.036) = 1.007297$ making 1.007209 sufficient close enough. This all has to be sorted out in the near future. Keep in mind the dynamics of the square root law does not affect the inertia state of the atoms in the macro mass generating gravity.

General comment
A question arises: Can neutron stars exist under the weak gravity condition ? The understanding is that hydraulic compression by strong gravity forces, then the neutron matter state could be reached. However the weak gravity condition does not allow for such a state of hydraulic compression, as is shown the black hole condition for super massive black holes is sufficient as a state for the coherent degenerated state of conjugated Hydrogen. It means as is shown that the solar contraction to the near the diameter of the event horizon is impossible. Then also a neutron star mass of 1.4 times solar cannot be reached. It explains that super nova's are most likely the non stable conditions for neutron stars, possibly giving relaxation cycles. In conclusion neutron degenerate matter cannot generate gravity because the conjugated hydrogen state cannot be activated.

Par 7.2 Some loose ends and wrong guesses, including Ref 1
Helium redundancy in the 'inflationary' period (A contradiction for steady state)

The scaling exercises of *Ref 1* and this paper have the disadvantage that the effort to understand these calculations, one looses oversight. The effort of understanding the jump transformation as the exchange between time and three dimensional space was obscuring the internal symmetry dynamics within proton and electron. The initial condition determines that the transformation from super massive WR to super massive BH should be the symmetry inversion for baron matter. In other words the initial condition of these massive WR's is the conjugated state due to a electric charge swap in which the acceleration pseudo vector component is the opposite to the normal gravity time direction for the present-day observed state of matter and defined as the normal state.

The jump transformation to us as observers is negative in time with respect to the zero time moment of symmetry pairing. So in that period of the determined 8640 yrs the conversion 'Helium redundancy' took place without involving the anti matter state for dark matter. The conjugated neutronian state of matter converted into the normal proton and electron state and due to sufficient compression generated the other atomic states as Deuterium, Tritium with Helium as the mean state
with respect to the light atomic elements. Every sequence for WR/BH to baron matter formation of galaxies contributed to the 'inflationary period' which is in fact a contradiction for the steady state of our cosmos. Principally the jump transformation is the same for each sequentially generated galaxy.

References:
Ref 1: Genesis completed! The steady state qubit universes.
Ref 2: Exercises on dark matter mediation for the solar parameters.
Ref 3: Dynamics gravity for three rigid rotors
Ref 4: Planck's mass and Planck's length. Giant symmetry groups
Ref 5: Reciprocal inertia time

SOLAR CONTRACTION IN DEGENERATED COHERENT DARK MATTER TO A BLACK HOLE

For didactic reason as some form of introduction (2018)

Par1 Considerations

The fundamental scaling calculations in chap 2 par 5 showed that the parameters Lamb shift, Bohr's radius and the 21 cm wavelength are all absolute constants of the electron in exchange to the mediating mass for dark matter. Therefore these parameters decompose any other atom into the proton and electron making these also absolute constants. Apparently a necessity to understand the degeneration of dark matter consisting of conjugated exchange between conjugated protons and electrons and normal protons and electrons (conjugated electrons are not positrons). In the following it is shown that the solar mass of $2\ 10^{30}$ kg can be contracted to a dynamic degenerated coherent state of dark matter with a radius of $6\ 10^{6}$ m and event horizon of 1.500 m.

For the onset of this scaling exercise the calculation of chap 4 exer 4 is used beginning with the 1st limit of magnetic coherent flux repeated here:

$\lambda = 5.1\ 10^{-7}$ m (Lamb): n_g is reciprocal of $(5.1\ 10^{-7})^3 = 7.54\ 10^{18}$ per m^3
$\sqrt{(7.9\ 10^{-26}/7.54\ 10^{18})} = 1.022\ 10^{-22}$ T/m^3 atomic density: $6.09\ 10^{30}$ at/m^3
Magnetic field density: $6.09\ 10^{30} \times 1.022\ 10^{-22} = 6.23\ 10^{8}$ T/m^3
In energy: $3.09\ 10^{23}$ J/m^3

With the magnetic density of $3.1\ 10^{23}$ J/m^3 then the contraction by a radius of ten times of R_o of $7\ 10^{8}$ to $R = 7\ 10^{7}$ m then the solar mass is exceeded:

$3.1\ 10^{23} \times 4/3\pi\ (7\ 10^{7})^3 = 4.45\ 10^{47} = M\ c^2$ $M = 4.95\ 10^{30}$ kg

What is learned that if all Lamb shifts of 5.1 10^{-7} m are fired coherently in parallel then this magnetic magnitude can be generated. And it is just a matter of dynamics to set up the alternating resonance between the two absolute states of proton /electron matter, namely the normal and the conjugated state.

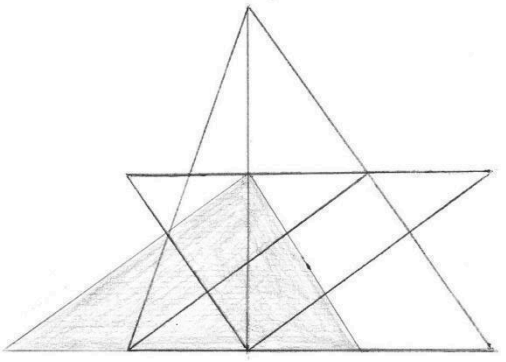
Normal	proton (+)	electron (-)	electric charge
conjugated	proton (-)	electron (+)	

Just remember the electric charge is conjugated induction due to ½ c condition of dm. As already learned the end cap of proton or electron is symmetric for electric charge conjugation. It is just the state of internal pseudo cells which determine normal or vice versa conjugated. So the supposition is that in synchronized dynamics these two states can be separated and maintained indefinitely being close to the absolute definition of a black hole.

Obviously due to the ½ c limit in momentum of the dm cells one expects a BH for twice the event horizon. However one ought to consider the conjugated mirror condition synchronized to the conjugated charge induction. It means that the photonic event radius is at $R_o = 6\ 10^6$ m and mirror conjugation at $3\ 10^6$ m which is not the actual photon event which is at R_o . It means the BH is hollow between $0 < R < 3\ 10^6$ m and has zero energy for this interval. The reason for R_o of four times the event comes partly from exercise 10 determining two equal states for normal and conjugation coherent dm cells. In the contracted state of the sun's mass the event is 1500 m but at R_o of 10^6 m one expects already BH conditions as the following will show.

For a hollow sphere the volumes with $R_{out} / R_{in} = 2$ or 4 are:

$4/3\ \pi$:	$(6\ 10^6)^3 =$	$9.05\ 10^{20}$ m^3
$4/3\ \pi$:	$(6\ 10^6)^3 - (3\ 10^6)^3 =$	$7.92\ 10^{20}$ m^3
$4/3\ \pi$:	$(6\ 10^6)^3 - (1.5\ 10^6)^3 =$	$8.91\ 10^{20}$ m^3



Where 9.05 /7.92 = 1.143 close enough for $m/m_o = \sqrt{4/3}$. A reason not to be bothered in this scaling exercise of the relativistic state of the electrons. At first an outer radius of 6000 km earth size was thought of but in the following all complications will be revealed.

Determination of the 1st coarse step for the set up:

$g = \lambda\ c^2 / R_o^2$ $\quad 1.5\ 10^3 \times 9\ 10^{16} / 3.6\ 10^{13} = 3.75\ 10^6$ m/sec^2

$b = g\ h / c$ $\quad 3.75\ 10^9 \times 2.21\ 10^{-42} = 8.29\ 10^{-36}$ kg m

Stick to the mediating dm atoms $N_o = 8.75\ 10^{57}$ at $\quad \sqrt{N_o} = 9.354\ 10^{28}$ at.

The dark matter equality for R_{dm}:

$8.26\ 10^{-36} \times 9.354\ 10^{28} = 4.44\ 10^{-23}\ R_{dm}$ $\quad R_{dm} = 1.74\ 10^{16}$ m $\quad R_{dm}^2 = 1.32\ 10^{-8}$ m

With $(2\pi\ c / 38.7)\ m_e = 4.44\ 10^{-23}$

The new supposition is that R_{dm} can be sequential instead of a membrane condition in which all dm atoms fire simultaneously, so a rotation sequence. It allows the angular momentum as a square power. However a step further is R_{dm} as cubic power in the angular relation. Then R_{dm}^3 is a double rotation in sequencing the angular momentum as a rigid dipole momentum. Both situations of the square power or cubic power are exercised.

Par 2 Geometric configuration of the hollow BH

Return to the first lecture in secondary school physics about the hollow spherical mirror in optics. Here the focus point for a parallel incident beam of light is at half the radius of the mirror.

Mid planes cubic and equilateral pyramid. Guessed conditions to give it some reality.

1. The λ-event state in general: then the outer surface has to comply with 4λ and the inner surface is 3λ while λ is the contraction layer for coherent degenerated dark matter. See the four nodes in the figure.
2. The half R focal point of a spherical mirror is normalized to c but due to the ½ c momentum in degenerate matter the focal radius can be at a ¼ as shown in the fig.
3. The inner radius at ¾ has to be the zero local time and location reference with respect to the coherent degeneration geometry. Then the centripetal force at that radius has to be balanced by the external gravity coming from the outer surface in which the event velocity is close to c. However internally in the degenerated layer conjugated charge induction should be maintained in coherence for as well the proton τ-state (positive) as for the μ-state of the electron. At zero inner matter should behave as normal. Note, for the sun at R = 6000 km with about 1500 Hz rotation the centripetal force is of the same order of gravity at the outer surface.
4. Therefore the configuration cubic charge conjugation induction for the electron and the end cap cubit configuration for the proton should be at 2 x 54°.74 of the mass center in the midplane figure. This is due to compression degeneration. In this manner the normal neutron state is prevented while μ- electron and τ- proton are maintained.
5. The λ-layer of coherent degenerated matter is subjected to Sacharov's law of dm induction. Then both R_{lin} and R_{sub} containing the radial and tangential components for dark matter are equal with $R_{lin} = R_{sub} = \sqrt{2}\ \lambda$. Resulting in the energy for work and rotation are nearly the same including the photon event horizon at 4λ due to the conjugated charge induction.
6. The head $\sqrt{\lambda}$ cycle frequency as well as the $\sqrt{M}$ dynamics for alternating compressed electrons and compressed protons should be guaranteed.
7. From the sunwheel calculation was valid that the dm radius for work of the aligned electrons is: $N_w = R_w / \lambda_e$ or the reciprocal of the electron length representing the qubit state representing the onset for the cloud. Therefore the degenerated coherent state of the sun can be at 6000 km outer radius. Similarly the volume of R^3 in the relation below for the angular momentum contains the position of the electrons in that initial condition for completion of the double rotating cycle and due to relaxation dynamics the dm atoms are involved embracing all inertia of the protons including the previous state of the neutrons.
8. The layer of the coherent degenerated state is magnetic superconductive bypassing the hollow volume.
9. Considering the midplane of the pyramid in above figure, not a half unit radius for the zero sphere but a ¾ radius internally seems an option.

Par 3 *Derivation and application of the 8th power rule.*

Use for $g = \lambda c^2 / R^2$ and R instead of R_{dm}

$\lambda c^2 / R^2 \times h/c \times N_3 = 4.44\ 10^{-23} \times R^3$ $1.35\ 10^{20} \times 2.21\ 10^{-42}\ N_3 = 4.44\ 10^{-23}\ R^5$

$N_3 = 0.1488\ R^5$

Was the Hartree potential for moderate gravity $C_H = 4.36\ 10^{-25}$ [T^2 m]. Here the naked proton /electron expression is used, see for B chap 5 par 5:

$C_e = B^2 \lambda$ $B = 1.704\ 10^{-8}$ T and λ (Lamb) = $5.1\ 10^{-7}$ m $C_e = 1.48\ 10^{-22}$ [T^2 m]

Where is determined by $B\ \pi\ (\lambda_e / 21.81)^2 = h$

Note that C_e as naked proton relation allows a m_m of 220.7 m_e in which Bohr's radius is still possible due to the mediating mass as an option in C_e provided the magnetic vacuum permeability of $\mu_o = 1$ because μ_o seems to be the reciprocal of $\sqrt{\lambda_e}$ as is discussed in chap 2 par 8 and 9.

Note: Based on h, uncertainty, for the electron B = 1.704 10^{-8} T and proton B = 7.155 10^{-7}T. Plug in the value of B proton in C_e giving λ = 2.893 10^{-10} m as conjugated wave length instead of 5.1 10^{-7} m with the ratio of 1763 which is correct and confirms the calculation of the proton induction at the end of chap 2 par 9. For it seems that 1728 m_e represents the quark cavity in the contracted space of μ_o =1.

Continuing the magnetic density per m^3 becomes according to above, as the contributing dm atoms the overall volume:
With F the mass fraction and M = 2 10^{30} kg.
Now F is also the atomic dm ratio between N_3 and N of the magnetic mass. $N = \sqrt{N_o} = 9.354\ 10^{28}$ dm at. coming from 8.75 10^{57} dm atoms.

$0.1488\ R^5 / 9.354\ 10^{28} = 2.262\ 10^{41} / (4/3\pi\ B^2\ R^3)$ giving R^8, 8th power.

With $C_e = 1.48\ 10^{-22}$ and $N = 9.354\ 10^{28}$ then $B = 1.384\ 10^7$ T/m^3

And $0.1488 / 9.354\ 10^{28} = 1.591\ 10^{-30}$

$R^8 = 2.262\ 10^{41} / (4.189\ B^2 \times 1.591\ 10^{-30}) = 1.772\ 10^{56}$ with $R = 1.074\ 10^7$ m

With that R then $g = 1.17\ 10^6$ m/sec^2 giving $w = m_e\ g\ R / 1.602\ 10^{-19} = 71.5$ eV

Now take the ratio of $71.5 / 5.87\ 10^{-6} = 1.22\ 10^7$ Lamb quanta. With cubic root 230.2 .
Use the production of quanta to increase $N = 230.2 \times 9.354\ 10^{28} = 2.153\ 10^{31}$

$0.1488 / 2.153\ 10^{31} = 6.91\ 10^{-33}$ $B = 1.48\ 10^{-22} \times 2.153\ 10^{31} = 3.184\ 10^9$ T/m^3

$2.262\ 10^{41} / 4.189 \times B^2 = 5.316\ 10^{21}$ $R^8 = 7.69\ 10^{53}$ $R = 5.44\ 10^6$ m

With $g = 4.56\ 10^6$ m/sec^2 for R then $w = m_e\ g\ R / 1.602\ 10^{-19} = 141$ eV
So R is just less than R = 6 10^6 m which was the aim to reach this contraction and showing that the parameters for Lamb generalized proton electron including Bohr's radius are absolute and valid.

Redo the calculation of 8th power R for the more extreme of 2 10^4 lamb quanta.

$N = 2\ 10^4 \times 9.354\ 10^{28}$ giving $B = 2.77\ 10^{11}$ T/m^3 $2.262\ 10^{41} / 4.189 \times B^2 = 7.04\ 10^{17}$

$0.1488 / 2\ 10^4 \times 9.354\ 10^{28} = 7.95\ 10^{-35}$ $R^8 = 8.852\ 10^{51}$ $R = 3.11\ 10^6$ m

$m_e / 1.602\ 10^{-19} = 5.686\ 10^{-12}$ $g = 1.392\ 10^7$ m/sec^2 $w = 246.5$ eV

It shows that if the production of lamb quant goes by a factor of 100 then the electron work energy goes by a factor of about two.

Note that the parameter dynamics derived in chap 4 par 11 to 13 is not supposed to change in these steady state analyses.

Par 4 guessed refinement corrections

The membrane condition is a cross section of R_{dm} for the Lamb Shift quanta as the initial condition is defined as a double rotation for the angular momentum of the two radii with right angles between them. It means that all R's at the spherical surface give all possible initial conditions which has the spatial angle of 4π as integration constant.
For the volume of angular momentum it is valid that all possible initial conditions for double rotation are determined by the volume giving the $4/3\ \pi$ constant for the volume integration.

The flip over geometry of the proton discussed above means that the mediating mass should be different from the one in a relaxed state then by the hydraulic pressure due to gravity. So not 250.8082 m_e but the substitution state of $220.6808 m_e$ determining the number of e-pseudo neutrinos is relaxation but now compressed by to pseudo τ's at c having $30.33 m_e$ rest mass. So in fact the number of paired e-pseudo's of $3.813364\ 10^5$ of 1.34 eV are contracted into 30.33 τ- pseudo at c.

Par 5 Exercising the product rule between two coherent guessed states

The product rule between two coherent states: $(N_o - N_2)\ N_1 = (?) = (N_o - N_1)\ N_2$
In the previous paragraph we saw that the escape velocity determines the amount of contributing synchronized dm atoms for the magnitude of the magnetic induction B. It leads to explore above product rule between the two coherent states of matter. In the sense of physics it could even mean that if only one coherent state is active in alteration then the non active state could equalize or transfer energy to the overall state of matter and then perhaps reducing the amount of needed overall dm atoms such as the parameter N which is always greater than N_o due to the production of dm atoms in excited state due to the high escape velocities .

Use: $N_1 = \alpha N_o$ and $N_2 = \beta N_o$ and use the equal sign in the expression.
$N (1 - \alpha - \beta - 1 \alpha \beta) = 0$
Case 1: If $\alpha = 1/\alpha$ then $\alpha = \beta = 1$ So no production result.
Case 2: $\alpha = 10$ then $\beta = 1$ or $\alpha = 0.1$ then $\beta = 1$ which indicates that β is equal to the energy.

Work out: $N_o^2 (1 - \alpha)^2$ and $N_o^2 (1 - \beta)^2$ and equal sign between both.
Then $- 2\alpha \beta = \alpha + \beta$ supposed to be absolute.
Case 1: $\alpha = 10$ $\beta = -10/21$ about 0.5
Case 2: $\alpha = 0.1$ $\beta = -0.1/1.2 = 0.082$ So always $\alpha > 1$ in the expressions
And a similar conclusion equals energy in the non active state.

Par 6 Thermonuclear equilibrium
The escape energy w in the calculations of par 3 are also states of equilibrium in which atoms of the inertia state thermalise in reaction to the fast network controlled by the mediating mass which is suggested in the equalizing state of the not active state of the alternation for the gravity dynamics. In other words it is a process of relaxation between the atomic state and the fast interaction of electrons and pseudo e- neutrinos.

This should explain the fusion process in relaxation intervals of the stars going from light to heavy atomic elements. In every relaxation cycle a thermal equilibrium exists around the escape velocity during the contraction of the star radius.

Par 7 Event scaling of λ for the classification of B.H.

Use the electron mass instead of the mediating mass in the derivation for the equality of the volume for angular momentum.
$\lambda c^2 / R_{dm} (h / c) \sqrt{N_o} = m_e (2\pi c / \sqrt{\lambda}) R_{dm}^3$ $\sqrt{N_o} = \sqrt{\{\lambda c^2 / (G m_e)\}}$
λ is event and $G = 6.7\ 10^{-11}$ $\{m^3 / sec^2\}$

$2.21\ 10^{-42} \times 9\ 10^{16} / \{2\pi \times (9.109\ 10^{-31})^{3/2} \times (6.7\ 10^{-11})^{1/2} = 4.45\ 10^{24}$
Giving the scaling expressions for the event BH's:
$R_{dm}^5 = 4.45\ 10^{24} \lambda^2$ from that one is also: $R_{dm}^4 = 4.45\ 10^{24} \lambda^2$

Setting up the tables for the macro masses of black holes and super massive black holes.

M kg	λ m	g m/sec^2	R_4 m	R_5 m
$2\ 10^{30}$	$1.5\ 10^3$	$6\ 10^{13}$	$5.63\ 10^7$	$1.58\ 10^6$
$2\ 10^{33}$	$1.5\ 10^6$	$6\ 10^{10}$	$1.78\ 10^9$	$2.51\ 10^7$
$2\ 10^{36}$	$1.5\ 10^9$	$6\ 10^7$	$5.63\ 10^{10}$	$3.98\ 10^8$
$2\ 10^{40}$	$1.5\ 10^{13}$	$6\ 10^3$	$5.63\ 10^{12}$	$1.58\ 10^{10}$

The gravity force at R_5(dm):

g(λ)	$g(R_5)$ m/sec^2
$6\ 10^{13}$	$5.14\ 10^7$
$6\ 10^{10}$	$2.14\ 10^8$
$6\ 10^7$	$8.52\ 10^8$
$6\ 10^3$	$5.41\ 10^9$

Note these numbers are for $\sqrt{N_o}$ based on the electron and not based on the mediating mass of $220.7 m_e$
Further the escape energy w is always: $w = (m_e / 160\ 10^{-19})\ g\ \lambda = 0.511$ MeV. So for all R_{dm} then $w < 0.511$ MeV.

In the range from the one solar mass to about 1000 the contraction to coherent degenerated states of matter gives the highest g-forces up to R_5 is about 10^8 m/sec^2 which makes complete λ-contraction impossible. BH up to solar masses of 2000 are observed which should be the maximum limit.

From the range of 10^6 to 10^{11} solar the super massive BH are possible. However in these situations R_5 and maybe R_4 have radii less than λ-event. Still it is supposed that the coherent degeneration can still be active below this λ-event. Still more detailing is needed.

The final limit of the super massive BH seems to be at 10^{10} or 10^{11} solar then the g(λ) of about 1000 m/sec^2 is so small that the universes could be separated during the evolution of our overall cosmos. Also more work is needed to make this statement valid. Note that for the super massive BH's with declining g (λ)'s inverse proportional to M the vacuum permeability of μ_o does not have to be one which requires redoing some of the calculations.