

Chapter 7 *improved version*

## THE RECIPROCAL TRANSFORMATION BETWEEN ALPHA AND OMEGA CONDITION OF THE STEADY STATE UNIVERSES AND EXERCISING THE HOLLOW SUPER MASSIVE BLACK HOLES

*Abstract*

*In the previous paper ref 1 the group symmetric relation of  $(24^3 \times \sqrt{2} \times 6)^2 = 1.375941 \cdot 10^{10}$  years for the age of the universe was stated and not derived. Further also the reciprocal transformation of one year is 8677 or  $5 \times 1728 = 8640$  hours, as it seems as a group symmetric number and determining the time scale of a galaxy around a super massive black hole was used, which was not understood and let alone derived. This will be remedied here in par 1.*

*Another subject also treated in ref 1 was the initial condition, apparently generating the super massive black holes in time sequence for an initial macro mass of  $M_{40} = 4.4587 \cdot 10^{40}$  kg compromising the entire universe. The state of these BH from  $M_{35}$  to  $M_{40}$  consequently releasing superfluous dark matter as galaxy matter, was not checked provided these BH states were really possible from the view of the weak gravity condition for the intermediating dark matter medium. This is remedied in par 2. holes.*

*Comment*

It is an oversight but one should realize that the formation of a super massive white radiator which relaxates to the state of a super massive black hole, undergoes an inflationary blow up. Say neutral dark matter undergoes an inversion contraction into proton/electrons under group symmetric conditions. So every black hole has the same inflationary time constant consequently this constant transposes the onset of our traditional outlook of the universe. It makes the reasoning of a steady state universe better understandable. See par 5 'Loose ends and wrong guesses'.

<https://vixra.org/abs/2312.0009> *Identical article published in viXra with error.*

*Errata: Ref 2, top of page 2. The division of  $8640 / 46.875 = 239.626$  had a factor of 10 wrong while the ratio  $8640 / 3.60281 = 2398.128$ . The 'new factor' of 10 between both divisions should be related to the ten universes linked by the Monster number which is indicated in Ref 1 .*

*Par 1 Derive the steady state age from the number of galaxies in the universe*

Strange as it may be, but for a steady state universe it is valid that if the initial condition is a sequence time string of black holes then it includes the end condition too. It means that what we observe as past as faraway galaxies, it is also the present to the future because we observe galaxies recently generated far away from us.

Every nearly steady state galaxy is supposed to be occupied by a super massive black hole which initially originated from  $M_{40} = 4.4587 \cdot 10^{40}$  kg about 20 billion solar masses. In the derivation the reciprocal transformation of one yr = 8640 hrs is used.

The first transformation is  $24^3 \times \sqrt{2} \times 6 = 1.17300 \cdot 10^5$  hrs and has to be expressed in years but shows here to be in hours. It has to be a consequence of the reciprocal transformation. In the previous paper *ref 1* the number galaxies per universe was derived  $1.412266 \cdot 10^{11}$  galaxies.

Take the spatial space for  $1.17300 \cdot 10^5$  yrs giving  $(1.1730 \cdot 10^5)^3 = 1.868014 \cdot 10^{11}$  yrs.

Divide by the number of galaxies  $1.868014 \cdot 10^{11} / 1.412266 \cdot 10^{11} = 1.322707$  yrs /galaxy

While  $(1.097710)^3 = 1.322707$  and  $1.097710 = 1.031563^3$  giving  $1.031563^2 = 1.064122$

The last factor is not a ratio but in yrs corresponding to  $1.064122 \times 1728 = 1838.803$  yrs. Apparently equivalent as a sequence time ratio for neutron rest mass to  $m_e$ , the electron mass. It is only due to the

steady state the age as a constant that this time equivalent should be valid. Everything is group symmetric related, so also the 1838.684 ratio for the neutron. Or expressed as the dark matter medium to behave as a qubit quantum state.

### *Second check*

A similar scaling seems to be valid for the reciprocal transformation. Again take a special time cube space in yrs  $8640^3 = 6.449725 \cdot 10^{11}$  divide by the number of galaxies:

$$6.440725 \cdot 10^{11} / 1.412266 \cdot 10^{11} = 4.566933 / 3 = 1.522311 / 1.5 = 1.014874$$

While 1.014874 corresponds to the genuine monster deviation of  $1.002453^6 = 1.014812$ . The small error has to be due to some kind of truncation in the used constants of nature. Again this result is only allowed due to the steady state condition in the age of the universe.

The cubic power of 8640 is way out compared to the group symmetric number of the age of

$1.375941 \cdot 10^{10}$  yrs (*Ref 1*). The ratio:  $6.449725 \cdot 10^{11} / 1.375941 \cdot 10^{10} = 46.87501$

Meaning that  $6.45 \cdot 10^{11}$  yrs determines the virtual contracted space of all universes together and not the age per universe. In comparison to the alpha or initial condition in hours is:

$$1.412266 \cdot 10^{11} \times 27.7128 = 3.913784 \cdot 10^{12} \text{ hrs}$$

For the above explanation of steady state it should be allowed that the number  $3.9138 \cdot 10^{12}$  should be valid also in the time scale of years. With  $(\sqrt{3})^7 = 46.76537$  giving deviation for 46.87501 of 1.002344 which is close enough to 1.002453 (monster deviation *Ref 1*).

*Corrected errata:* This result determines that instead of 8640 yrs per galaxy only

$8640 / 46.87537 = 184.3199$  yrs are a factor 10 wrong while the ratio  $8640 / \underline{3.60281} = 2398.128$

yrs. With  $184.752 \times (2\sqrt{2})^{1/4} = 239.5936$ . The ratio is  $2398.128 / 239.594 = 10.0078$ . The ‘new

factor’ of 10 between both divisions should be related to the ten universes linked by the

Monster number which is indicated in *Ref 1*. The 2398 years should have been the cubic

dimensions of spatial space around a galaxy where the nearly 24 hundred light years corresponds to a factor 3.6 less than the steady state nucleus of galaxy matter.

The result can be reasoned backwards, namely the supposition that close to  $240 \times 3.6 = 864$  yrs is the overall allowed exchange between all universes as a form of feedback energy. The age of the universe as 240 yrs times the number of galaxies giving  $3.390 \cdot 10^{13}$  lyrs with  $3.390 \cdot 10^{13} / 1.376 \cdot 10^{10} = 2.460$  close enough to above, consequently stating that this is also the omega end condition for the universes which was the aim of exercise. (Put in the 3.6 factor to come to the initial statement.)

So in this manner the reciprocal transformation of 8640 hrs for one year is as well a group symmetric number as a jump transformation for the initial steady state of atoms or proton/ electron to the time age of the nucleus for a galaxy  $\{(\sqrt{3})^7\}^{1/3} = \underline{3.602810}$  and  $3.602810 \times 2396.256 = 8633.255$  yrs. So indirectly the jump transformation as a whole determines the age of the universe multiplied by the number of galaxies. The jump transformation should correspond to the inflationary period scientifically accepted in astronomy. The jump transformation can be understood as that in one year of 8677 (8640) hours the state of dark matter/ baryon-quark mass has been reached while simultaneously the space expansion for the galaxy nucleus was reached in 2400 yrs. As is mentioned every sequential release of an  $M_{40}$  WR transforms into baron matter by the jump transformation resulting in the observed ‘inflationary period’ even though the universe is in a steady state.

### *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 momentum for gravity and angular momentum. The equality is:

$$g \frac{h}{c} N = m_e 2\pi c/\sqrt{\lambda} R$$

The gravity force  $g$  is at 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 in dynamics 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 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 in conjugation. The axial force of as well as 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 with 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:

$$1 / 1837.153 + 1/250.8082 = 1 / 220.6808 \quad (\text{related to the electron rest mass})$$

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 is:  $m_m^2 = 1/4 m_{at} 137.037$ . With 137.036 the reciprocal fine structure of the electron with respect to the Fermi spin.

Apply the Hartree potential of the H atom:  $4.35975 \cdot 10^{-18}$  Joule rel (2.1)

Divide by  $4\pi$  for correction to the magnetic equivalence of the potential:  $3.4694 \cdot 10^{-19}$  Joule with respect to the quantum flux of  $\phi = h/2e$ .

Take the mediating mass ( $m c^2$ ):

$$250.8082 \times 9.109 \cdot 10^{-31} c^2 (1.136500 - 1) = 2.80150 \cdot 10^{-12} \text{ Joule}$$

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

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

This ratio seems great enough to execute coherent conjugation and further be treated in par 3.

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 in part of  $\sqrt{M}$ . The fast states are due magnetic Lamb shift excitation coherent in such a manner that the dark matter state behaves as a rigid rotor.

Here in this paper only the equivalence condition for momentum is exercised. The dynamics with respect to the square root rule for the number of mediating atoms in coherence is not considered but discussed in par 4 'comments'.

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

In this paragraph one finds the scaling calculations for three super massive black holes and the one for the solar mass with event 1500 m and contracted to 6000 m which turns out too small to make life internally possible but solar contraction to 3000 km internally and 6000 km outside is certainly within reach. The contraction to 4 times the event radius is valid for all black holes.

All black holes consisting of degenerated dark matter in coherence have a minimum outer radius of  $4\lambda$  with  $\lambda$  the event wavelength and  $2\lambda$  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 to and from the  $2\lambda$  radius is always  $45^\circ$  with respect to either side of an outgoing radius from the center.

It is only due to the BH calculations for  $M_{40}$  that as well as the conversion energy due to conjugation together with the requirement of  $4\lambda$  outer radius turned out to be the proper choice to set up the BH parameters for the hollow super massive black holes.

The calculation of the momentum balance between gravity and angular momentum

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

Most times the dark matter radius  $R$  can be  $n = 1$  or  $n = 2$ . Only for Earth by trial and error turned out  $n = 5$  for the fast rotation or echo distance of the dark matter frequency.

This impulse frequency has to be in equilibrium to the inertia rotation of the BH macro mass:

$$\frac{1}{2} M (1 - \frac{1}{4}) c^2 = 10/4 M \omega^2 (16 \lambda^2 + 4\lambda^2)$$

Where  $(16 \lambda^2 + 4\lambda^2)$  inertia momentum of a hollow sphere. Knowing the  $M$  and  $\lambda$ , the cycle frequency  $\omega$  can be calculated.

The parameters  $\lambda$  and  $R$  are not corrected for time dilation and Lorentz contraction due to the maximum momentum of the mediating medium of  $\frac{1}{2} c_{\text{eff}}$ .

*Used constants:*

All parameters as macro masses and others are derived in *ref 1*

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

$$\text{Uncertainty condition } h/c = 2.2100 \cdot 10^{-42} \quad \mu_0 = 1.25664 \cdot 10^{-6} = 4\pi \cdot 10^{-7}$$

*The hollow super massive black hole  $M_{40}$*

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

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

$$\text{Number of mediating atoms: } N_0 = 4.4587 \cdot 10^{40} / 250.8082 \times 9.109 \cdot 10^{-31} = 1.95162 \cdot 10^{68}$$

$$\sqrt{N_0} = 1.3970 \cdot 10^{34} \quad \text{Sacharov's law as maximum separation for dynamics.}$$

Momentum equality:

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

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

*The first trial calculation was with truncated figures as 251 and 5.1  $10^{-7}$  which had to be corrected as follows:*

Hartree magnetic equivalence based on Lamb shift of  $\lambda = 5.06016 \cdot 10^{-7}$  m per H atom,

*see above rel (2.1):*

$$3.4696 \cdot 10^{-19} \mu_0 = B^2 \lambda \quad \sqrt{\{4.36 \cdot 10^{-25} / (5.06016 \cdot 10^{-7})^3\}} = 2.377 \cdot 10^{-22} \text{ B} \quad (2.405 \cdot 10^{-22})$$

With  $B$  the magnetic induction per cubic meter. Applied to fully magnetized mass:

$$\mu_0 M c^2 = B^2 \lambda^3 \quad 5.0334 \cdot 10^{51} = B^2 3.632 \cdot 10^{40} \quad B_{\text{max}} = 3.723 \cdot 10^5 \text{ Tesla}$$

$$\text{So } 2.377 \cdot 10^{-22} / N = B \quad \text{with } B_{\text{max}} = 3.723 \cdot 10^5 \text{ T} \quad N = 1.5663 \cdot 10^{27} \text{ mediating cells}$$

The conversion ratio for conjugation is 8.0749  $10^6$  making:

$$1.3970 \cdot 10^{34} / 1.5663 \cdot 10^{27} = 8.9191 \cdot 10^6 \quad \text{ratio: } 1.050973^2$$

$$1.050973 / 1.050818 = 1 / 1.000148$$

$$1.5663 \cdot 10^{27} / 4.1295 \cdot 10^{26} = 3.793 / 4 = 1 / 1.054587 \quad 1.054587 / 1.050818 = 1.003586$$

$$\text{May be far fetched: } \sqrt{1.002453} = 1.001225 \quad 1.001225^3 / 1.003586 = 1.00094$$

The ratio  $144 / 137.036 = 1.050818$  is from the internal time sequence of three  $\mu$ -pseudo vector neutrinos of the electron determining the reciprocal fine structure constant.

*Note first trial calculation pointed to this scaling and looked better adapted.*

The division by four suggests 4 times the event state.

So shown is that all stated parameters are in some agreement with the determined macro mass in *ref 1*. Further elaboration is not continued because  $M_{40}$  cannot be too common in our cosmos.

*Reminder:* The initial super massive white radiator of  $M_{40}$  relaxates to galaxies having a super massive BH in which the state of the dark matter also consisting of barons around the BH is in equilibrium with the event horizon which is within the  $4\lambda$ -boundary of the BH.

*The super massive black hole  $M_{37}$*

$$\begin{aligned} M_{37} &= 7.273 \cdot 10^{37} \text{ kg} & \lambda &= 5.4019 \cdot 10^{10} \text{ m} & g &= G M / \lambda^2 = 1.66302 \cdot 10^6 \text{ m/sec}^2 \\ \text{Vol} &= \lambda^3 = 1.5763 \cdot 10^{32} \text{ m}^3 & 2\pi c / \sqrt{\lambda} &= 8.1027 \cdot 10^3 & \text{times } 251 \times 9.109 \cdot 10^{-31} &= 1.8526 \cdot 10^{-24} \\ & 1.8526 \cdot 10^{-24} \times \lambda = g h/c = 3.675 \cdot 10^{-36} \text{ N} & N &= 2.723 \cdot 10^{22} \\ & 1.8526 \cdot 10^{-24} \times \lambda^2 = 3.675 \cdot 10^{-36} \text{ N} & N &= 1.4709 \cdot 10^{33} \\ N_0 &= 7.237 \cdot 10^{37} / 251 \times 9.109 \cdot 10^{-31} = 3.181 \cdot 10^{65} & \sqrt{N_0} &= 5.6401 \cdot 10^{32} & N(\lambda^2) &> \sqrt{N_0} \end{aligned}$$

Magnetic energy volume for  $M_{37}$ :

$$\begin{aligned} M c^2 \mu_0 &= B^2 \text{ vol} & 6.2105 \cdot 10^{48} &= B^2 \times 1.5773 \cdot 10^{32} & B &= 2.2823 \cdot 10^8 \text{ T} \\ \text{B per m}^3 &: 2.405 \cdot 10^{-22} = B/N & N &= 9.490 \cdot 10^{29} & \text{So } N &< \sqrt{N_0} \end{aligned}$$

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

$$\begin{aligned} 3.675 \cdot 10^{-36} N' &= 1.8526 \cdot 10^{-24} \times 64 \lambda & N' &= 1.743 \cdot 10^{24} \\ B &= 2.405 \cdot 10^{-22} N' = 419.2 \text{ T} & \text{Closed hollow cube torus: vol} &= (64 - 8)\lambda^3 = 56 \lambda^3 \\ B^2 / \mu_0 & 56 \lambda^3 = 1.234 \cdot 10^{45} < M c^2 \text{ Joule.} \end{aligned}$$

Re do above for  $\sqrt{N_0}$ :

$$3.6753 \cdot 10^{-36} \times 5.6401 \cdot 10^{32} = 1.8526 \cdot 10^{-24} \lambda'^2 \quad \lambda'^2 = 1.119 \cdot 10^{21} \quad \lambda' = 3.345 \cdot 10^{10} \text{ m}$$

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  $\lambda'$  allows frequency doubling.

*The super massive black hole  $M_{35}$*

$$\begin{aligned} M_{35} &= 1.18645 \cdot 10^{35} \text{ kg} & \lambda &= 8.812 \cdot 10^7 \text{ m} & g &= 1.0194 \cdot 10^9 \text{ m/sec}^2 \\ g h/c &= 2.253 \cdot 10^{-33} & 251 \times 9.109 \cdot 10^{-31} \times 2\pi c / \sqrt{\lambda} &= 4.587 \cdot 10^{-23} \\ N_0 &= 5.1893 \cdot 10^{62} & \sqrt{N_0} &= 2.278 \cdot 10^{31} & \lambda^3 &= 6.843 \cdot 10^{23} \text{ m}^3 \end{aligned}$$

Momentum equality:

$$2.253 \cdot 10^{-33} N = 4.587 \cdot 10^{-23} \lambda^2 \quad N = 1.581 \cdot 10^{26}$$

Take the constant magnetic induction per  $\text{m}^3$ :  $2.405 \cdot 10^{-22} = B / N \quad B = 3.802 \cdot 10^4 \text{ T}$

Re do above momentum balance for  $\lambda' = 4\lambda$ , dark matter thickness of hollow sphere  $2\lambda$ :

$$\begin{aligned} (2.253 \cdot 10^{-30} / 16) \times N' &= 4.587 \cdot 10^{-23} \times 4 \lambda^2 & N' &= 64 \times 1.581 \cdot 10^{26} = 1.012 \cdot 10^{28} \\ N' &< \sqrt{N_0} & B^2 / \mu_0 & 56 \lambda^3 = 4.41 \cdot 10^{40} \text{ Joule} & \text{torus volume: } &(64 - 8)\lambda^3 \end{aligned}$$

Again frequency doubling is possible. No magnetic flux conservation applied. Torus geometry is lossless to the outside 'world'.

Calculate the inertia rotation frequency:

$$3/8 M c^2 = 10/4 M \omega^2 (24\lambda^2) \quad \omega = 0.27 \text{ cycles per sec}$$

Compared to  $(c/4\lambda)^2 = 1.51 \cdot 10^{-10} \text{ sec}$  or  $6.62 \text{ GHz}$  of the fast impulses generated by the dm rotor which is contracted in the dynamics of the coherent cells of the  $2\lambda$  layer inside the outer radius of  $4\lambda$ .

*The Sun contracted as a hollow black hole*

$$\begin{aligned} M &= 2 \cdot 10^{30} \text{ kg} & \lambda &= 1500 \text{ m} & g &= G M / \lambda^2 = 5.931 \cdot 10^{13} \text{ m/sec}^2 & g h/c &= 1.311 \cdot 10^{-28} \\ \omega &= 2\pi c / \sqrt{\lambda} = 4.871 \cdot 10^7 \text{ cycles /sec} & 251 \times 9.109 \cdot 10^{-31} \omega &= 1.114 \cdot 10^{-20} \\ N_0 &= 2 \cdot 10^{30} / 251 \times 9.109 \cdot 10^{-31} = 8.748 \cdot 10^{57} & \sqrt{N_0} &= 9.353 \cdot 10^{28} \end{aligned}$$

The magnetic induction constant per  $\text{m}^3$  for  $\sqrt{N_0}$ :

$$\begin{aligned} 2.405 \cdot 10^{-22} &= 9.353 \cdot 10^{28} B_{\text{max}} & B_{\text{max}} &= 2.250 \cdot 10^7 \text{ Tesla} \\ B_{\text{max}}^2 / \mu_0 \times 1500^3 &= 1.351 \cdot 10^{30} \text{ Joule} & \text{torus volume multiply by } &56 \end{aligned}$$

Note, not applied magnetic flux conservation for torus expansion.

By trial and error, take  $R_5 = 6000^5 = 7.776 \cdot 10^{11}$  as frequency multiplier for the dark matter radius.

$$\begin{aligned} 1.311 \cdot 10^{-28} / 16 N_5 &= 1.14 \cdot 10^{-20} R_5 & N_5 &= 1.057 \cdot 10^{28} < \sqrt{N_0} \\ \text{Ratio } N_5 / \sqrt{N_0} &= 8.847 & 1.5465^5 &= 8.847 & 1.5465 / 1.5 &= 1.0310 \quad (1.0310^2 \times 1728) \end{aligned}$$

Again  $2.405 \cdot 10^{-22} = 1.057 \cdot 10^{28} B'$   $B' = 2.543 \cdot 10^6$  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

$$g = 3.707 \cdot 10^6 \text{ m/sec}^2 \quad g \text{ h/c} = 8.192 \cdot 10^{-36}$$

$$8.192 \cdot 10^{-36} \sqrt{N_0} = 1.114 \cdot 10^{-20} R^2 \quad R^2 = 6.88 \cdot 10^{13} \quad R = 8.293 \cdot 10^6 \text{ m} > 610^6 \text{ m}$$

For  $R = 6 \cdot 10^6$  m then  $N' = 4.896 \cdot 10^{28}$  mediating cells  $< \sqrt{N_0}$

Also  $B_{\max}$  is allowed

$$B_{\max}^2 / \mu_0 (6 \cdot 10^6)^3 = 8.70 \cdot 10^{40} < (1.8 \cdot 10^{47} = M c^2) \text{ Joule}$$

So it shows that the contraction of the dark matter radius to the fifth power is highly unlikely. To prove that only the 2<sup>nd</sup> power for the dm radius is valid in general is more difficult.

#### Par 4 Comments

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  $\lambda$  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.*

Further analyses are needed to show the super massive black holes of the same mass are coupled between the universes which should be a consequence of the line density between the BH-states  $M / \lambda = c^2 / G$ , of course determined in higher order approximation for gravity waves as feedback energy exchange.

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  $(\sqrt{1.5})^{1/3} = 1.144714$

$$1.144714 / 1.13652 = 1.007209 \quad \text{and} \quad (\sqrt{4/3} = 1.154700) / 1.144714 = 1.008723$$

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 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 the sufficient 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 5 Some loose ends and wrong guesses, including Ref 1*  
*Helium redundancy in the 'inflationary' period* (A contradiction to steady state)

*Par 5.1* The scaling exercises of *Ref 1* and this paper have the disadvantage that the effort to understand these calculations, one loses 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 the WR/BH to baron matter formation of the 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.

*Par 5.2* The models for the scaling calculations is the result of two scaling:

- The monster group symmetry number involves the entire energy of the universes, in fact twelve and not ten. That is according to the phase time symmetry of the equilateral pyramid.
- The monster number is applied to the restricted but initial scaled mass of the super massive WR/BH inversion resulting in the number of galaxies and the jump transformation of hours to years and vice versa.

The overall energy dump for the universes suggested a period of 768 yrs doubled due to mediating medium determining, in par 1 *errata*, an exchange feedback to the phase space of time of 240 yrs apart of a factor of 3.6 in which the calculation was also based on the integer 3. It is difficult to understand the integer three. Where does it come from? Although related to the geometry of the equilateral pyramid and so fundamentally the integer three is a consequence in the triplets of proton and electron (neutron) in which the reciprocal of a third as the pseudo  $\mu$ -neutrino mass in the electron. However also the ratio  $3/2$  is a fundamental ratio for the double rotation of the coherent photon energy in the phase space of time, the feedback exchange between the twelve universes all linked by the super massive BH's. The coherent double rotation represents the two states of precession and spin in phase space, the spin ratio 3 to ratio 2 for the precession. Obviously during the initial periods of the sequential release of WR/BH the feedback in photon coherence energy was more important than during the steady state later on.

Another wrong guess to rectify is, somewhat overstating that the qubit definition as  $4.12 \cdot 10^{11}$  qubits per metre for the electron is equal to the number of galaxies of  $1.412 \cdot 10^{11}$ . It is wrong but for a factor of three between these numbers follows the previous remark and it is not too much in violation, for these are linked somehow.

What rest as a last remark is the intriguing question of how the classification of the different integers for any of the symmetry groups are integrated in the dark matter physics of the weak gravity condition. It is up to the future students in physics to resolve this question and complete the mathematics of the asymmetric Creation from the Nothing of opposing infinite possibilities.

*References:*

Ref 1: <https://vixra.org/abs/2309.0046> Genesis completed! The steady state qubit universes.

Ref 2: <https://vixra/abs/2305.0078> Exercises on dark matter mediation for the solar parameters.

Ref 3: <https://gravitation-levitation-physics.org> Exercises 11 to 13