STEADY STATE SCALING FOR DARK MATTER RADII OF SUN, PLANETS AND MOON
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Abstract

In ref 1 the ground rules were derived which made it possible to calculate the dark matter radii other gravity exchange situations other than the one of the sun. The exchange balance for momentum between radial exchange due to the gravity at the gravity boundary and angular momentum for a time interval of the square root of the event horizon of a macro mass determines the radius of the dark matter rigid rotor maintained by magnetic flux in coherence. The physics of calculated dark matter radius is in fact a layer of group clusters at the outward boundary making the inner part of dark matter distribution like a hollow sphere without dark matter of which the dimension of the coherent cluster layer is equal to the rigid rotor radius. This radius is related in fact the echo distance as a fixed constant to the mass rotation of the macro body, planet moon or star maintaining the transfer of echo angular momentum to the equilibrium of the mass rotation. These calculations are done for Sun, Earth, Moon, Venus, Mercury and Jupiter giving a different insight than already guessed of how the dark matter medium influenced the formation of our planetary system.

Par1.1 Introduction

In *(ref 1)* the parameters for the dynamic gravity were discovered from the present day state of the Sun in which the dm medium interacts to the mediating mass between proton and electron. In gravity generation the electrons drives overall coherent conjugation of the dm cells which is a dissipation free collision process.

What was not realized sufficiently is that the synchronous coherent dynamics of the electrons controlled by the mediating state of the generalized H atom has macroscopic consequences restricted by the conservation of Newton's law of angular momentum. Firstly it was learned that that the mediating state is independent of the Fermi state of the individual atoms and electrons. Secondly although the coherent synchronous dynamics by dm cells (electrons) involves electromagnetic energy this process should not have necessarily consequences of macroscopic steady state. Actually these states, the dynamic one governed by electromagnetic laws are separated from the steady state of the macro mass forcing the dm medium in rotation and precession. Earlier it was thought these macro parameters were decoupled. Here we learn that these are strongly linked to the dynamics process entirely the consequence of loss free collision exchange by the dm medium.

Par 1.2 Summary of the important properties

The generalized H atom is distinguished from the generalized proton in that it includes the electron. As is discovered and should be realized sooner dark matter does not 'see ' electric charge and considering Lamb shift conjugation of the atom then any other atom such as He or Fe atom, it should be decomposed into two or 28 generalized H atoms. For every electric charge in the atom a generalized proton and electron. The derivation is given in chap 2 par 4 because Sakharov's law of induction determines that the electron conjugation to the proton can only be valid if the proton generalized or not bridges the conjugation gap or the mediating mass. Note the mediating mass goes by square root while the generalized proton includes the binding energy of the nucleon ensemble. The range in binding energy is small about 1 or 2% for all natural atoms and this is reflected in the rest mass of the generalized proton.

Dark matter dipole definition
In this chapter the rotating dm dipole bridges between the external rotation of the macro mass and the coherent synchronization of the dm atoms or mediating state for the atoms. The synchronous to and fro movement in the dynamics of the electrons determines that the dm cells organize themselves in a conjugated dipole represented by a number of dm atoms. This dipole is considered to be twice the

radius given in a calculation due to ½c_{eff} and representing at both end the opposite states for conjugation.
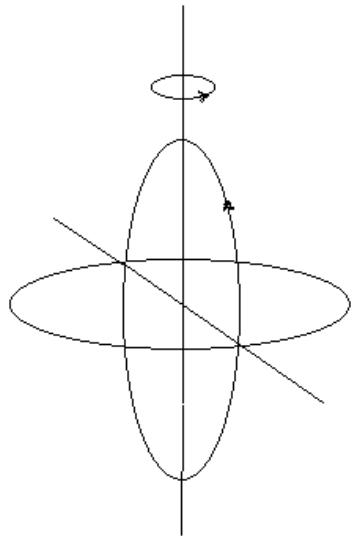
Distinction between gravity dynamics and the overall reaction of the steady state

The leading parameter in gravity dynamics is the macroscopic angular momentum given by the outer radius of the macro mass. In gravity generation the dynamics is carried by the event parameter maintained by coherent electron mobility as leading parameter which is the summation of all dm atoms but these act under the umbrella of the $\sqrt{N_o}$ rule in alternation. However apparently and it should be more obvious one alternating state is a reaction to the other alternating state. In other words there is a continuous impulse carried over to the angular momentum then involving all the dm atoms and setting up a steady state rotation for the dm medium.

This involves two parameters: a rotation and a precession of the dm medium which is independent and lossless of the inertia state of matter in stars, planets or moons. So the macro spin of the inertia mass maintains the absolute position of the rotation axis while the dm medium rotates around this axis executing a rotation and a precession with the absolute rotation axis and equatorial plane as orientation reference. It is the reference frame for the agile coherent movements of the medium. This results in different options of the geometry behavior of the dm dipole within the macro mass. See the fig's.
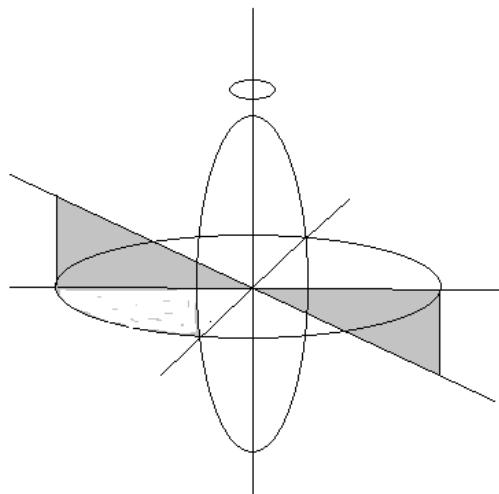
Main frame for inertia matter in a sphere of macro matter.
Rotation axis of the mass vertical and equatorial plane.
The plane through the rotation axis is the precession of dark matter. The momentary position of the precession is independent from the rotation plane of the dm dipole in the equatorial plane. The dm dipole and the precession are completely independent from each other. See par 1.4 for conclusions.

Dark matter dipole in the reference frame not linked to precession
At low gravity the dipole onset is in the equatorial plane. The dipole length is always smaller than R_o the outer radius of the macro mass sphere. From the calculations below the following options seem to be possible for the dm dipole:
1. The plane of rotation of the dipole could make an angle to the equatorial plane but in many situations it is difficult to decide.
2. Sure is that this inner dipole rotates according to the ratio of outer and dark matter radius faster than the outer rotation. Sometimes this ratio as n_{gear} is twice or three times that.
3.   It is supposed that the angle of 45º to the equatorial plane is the instability situation for the dipole plane. Again it is difficult to decide precisely.

4. If the dm diameter expressed as R_{dm} is too small then the dm dipole steps up this rotation quadratically.
5. The angle of phase forward rotation is defined for the equatorial plane.
6. Discovered the time lapse gap of dm inversion for the precession. Discussed at the end in par 1.4.

Comment 2021
Note that the parameter n_{gear} got the wrong meaning. In fact the small dm dipole with all its quirks as instabilities etc. undergoes inversion boosting, repetitive inversions, to reach the required echo time which is the number of impulses for n_{gear}. Secondly macroscopic conservation of angular momentum of the solar or planet mass was not applied in the Sun II and Earth II calculations. Working out these situations does not change much. Only the rotation frequencies of the dm dipole are affected which has some interesting results but worked out here.

It was later on realized that the derived dark matter radii passing through the center of the sphere in the sense of physics are not correct. In fact the dark matter coherent dynamics of the cells begins at the outer radius with the echo distance directed inward. The difference between outer and inner radius is the derived dark matter radius.

Par 1.3 Derivation of the macro laws for star, planet or moon revolution and precession.

The macro parameters of star, planet or moon are:
M as macro mass in kg, g in m/sec^2 as gravity at the radius R_o in meter, and ω the revolution in Hz.

$$N_o = M / 251\ m_e \qquad w_{esc} = \tfrac{1}{2}\ m_e\ v^2 / 1.602\ 10^{-19}\ eV \qquad r_{esc} = w_{esc} / 5.87\ 10^{-6}$$

From the exercise 10 in chap 4:
$$N_{esc} = \sqrt{(N_o / r_{esc})} \qquad R_{dm} = g\ (h/c)N_{esc} / (m_e\ 2\pi c / \sqrt{\lambda}) \tag{1}$$

From exercise 4 chap 4 and elimination of g:
$$(M\ R_o / N_o)\{g\ (h/c)\ N_o\} = 1 / R_{rec} \qquad \text{or} \qquad (G\ M^2 / R_o)(h/c) = 1/R_{rec} \tag{2}$$

Apply and eliminate g at R_{dm} from (1): $\qquad$ with $\qquad g_{dm} = G\ M/R_{dm}^2$
$$(R_{dm} / \sqrt{\lambda})^3\ (1 / N_{dm}) = h / (2\pi\ m_e) = 1.1584\ 10^{-4} \tag{3}$$

Echo impulse relation:
$$c / R_o \qquad \text{and} \qquad n_{gear} = R_o / R_{dm} \qquad \omega_{dm} = n_{gear}\ \omega \tag{4}$$

Dm precession, in chap 3 exercise 6: $\qquad g\ (h/c)\ \omega_o^2\ R_o = 251\ m_e \qquad \omega_o^2 = \omega\ \omega_{prec}$
$$g\ (h/c)\ \omega\ R_o / 251\ m_e = 1 / \omega_{prec} \quad (\omega = 2\pi\ \omega) \tag{5}$$

R_{dm} is radius of dm dipole in (1), N_{dm} number of dm atoms in dipole in (2) and R_{rec} is a difficult dimensional parameter of reciprocal energy of angular echo impulse of c/R_o. The reciprocal because it is an inversion of the dm state 'seen' by the echo condition in reference to c.

Remarkable is that the revolution of a macro mass is constant for any change in R_o at the same M while the precession cycle time changes with R_o. The reason is that the dynamics for gravity to 'time' prevents the increase of revolutions with diminishing R_o.
Further remarkable is that the ratios of
$\qquad 3\sqrt{2} \qquad 2 = 3/2 \times 4/3 \qquad \sqrt{2} \qquad \sqrt{1.5} \qquad 2 \times 4/3 \times 3\sqrt{2} = 11.314$
return in the scaling calculations.

General conclusion : Replacing N_o of 8.75 10^{57} dm atoms for 1.195 10^{57} H atoms could be valid if not for Earth the magnetic field of the dm dipole calibrates for 8.75 10^{57} dm atoms. However Chap 2 par 4 forbids this option due to the gravitational induction condition making the choice of the mediating mass correct.

In all calculations below the derived parameters (1), (2), (3) and (5) are calculated for the four given parameters as M, R_o, g and ω.

<div align="center">SUN I</div>

M = 2 10^{30} kg	R_o = 7 10^8 m	g = 276 m/sec^2	ω = 25.4dd = 4.557 10^{-7} Hz

λ = 1500 m $\quad\quad$ $\sqrt{\lambda}$ = 38.7 m $\quad\quad$ w_{esc} = 1.099 eV $\quad\quad$ ΔN_{esc} = 1.872 10^5 = 432^2
dev
N_o = 8.75 10^{57} dm at $\quad\quad\quad\quad\quad\quad$ N_{esc} = 2.163 10^{26} at $\quad\quad$ c /R_o = 1 /2.332 Hz

Internal parameters
R_{dm} = 5.117 10^6 m $\quad\quad$ N_{dm} = 5.109 10^{25} at $\quad\quad$ R_{rec} = 1.187 $\quad\quad$ R_{dm} was thought to be R_o

Dark matter dipole R_{dm} $\quad\quad\quad\quad\quad\quad\quad\quad$ n_{gear} = 136.8
$\quad\quad$ 4.557 10^{-7} x 5.117 10^6 = 2.332 $\quad\quad\quad$ Angular momentum steady state impulses
$\quad\quad$ (4.557 10^{-7} /2.332) x 5.117 10^6 = 1.0
$\quad\quad$ 4.557 10^{-7} /2.332 = 1.954 10^{-7} $\quad\quad\quad$ ω_{dm} = 1.954 10^{-7} x 136.8 = 2.673 10^{-5} Hz
$\quad\quad$ 4.557 10^{-7} x 5.117 10^6 cos37^o = 1.86 $\quad$ the correction for 1.86 in ω_{dm} is neglected further.
$\quad\quad$ Trials from cos 38°.82 = 1 /(½ 2.332) to cos 64°.61 = 1 /2.332 and cos 52°.67 = $\sqrt{2}$ /2.332

Dm precession
$\quad\quad$ 276 x (h/c) x 2π 4.557 10^{-7} x 7 10^8 /(251 m_e) = (reciprocal of 1.87 10^8 sec)
$\quad\quad$ divided by 3.154 10^7 = 5.93 yrs.
$\quad\quad$ Multiplied by 2.332 gives 13.87 yrs but calibration by 1.86 : $\quad\quad$ 5.93 x 1.86 = 11.04 yrs for
$\quad\quad$ 37° .
$\quad\quad$ What also is the phase forward angle due to dm acceleration although the angle from 30° to
45° makes the precession cycle only an assessment because the error in the calculation seems to 9% .
$\quad\quad$ For the precession dm inversion divide instead of multiplying by 1.86 giving 5.93/1.86 = 3.2
$\quad\quad$ yrs meaning as a guess that within the period of 11.04 yrs it takes 3.2 yrs to turn over the
$\quad\quad$ magnetic field.

Discussion
$\quad\quad$ The braking dm dipole of 5.117 10^6 m has phase forward acceleration as work to generate the
$\quad\quad$ energy for braking apparently too much energy is generated by fusion burning although
$\quad\quad$ R_{dm} = R_o determines the entire solar mass is involved in gravity generation. Braking means
$\quad\quad$ the internal rotation is the opposite of the observed rotation of 25.4 dd. All other planets or
$\quad\quad$ moons have forward internal rotation except Jupiter and Earth which have often a braking or
$\quad\quad$ a forward rotation dipole depending on the instability state of the precession. The precession
$\quad\quad$ of Saturn, Neptune and Uranus are not known.
$\quad\quad$ Not excluded is the possibility that the polarity of the magnetic field can be caused at the tilt
$\quad\quad$ of the dm rotation plane to an angle of 52°.67 due to $\sqrt{2}$ accelerations but the last is just an
$\quad\quad$ educated guess. The tilting with respect to the equatorial plane perpendicular to the rotation
$\quad\quad$ axis of the sun.

<div align="center">MAGNETIC FIELD ASSESSMENT AT SOLAR SURFACE</div>

Return to exercise 3 and 4 in chap 3
$\quad\quad$ C_g is 7.9 10^{-26} = B^2 λ_g $\quad\quad\quad$ λ_g = 0.211 m $\quad\quad\quad$ n_g = 1 /0.211^3 = 106 at/m^3

$\quad\quad$ B =$\sqrt{(7.9 \ 10^{-26} /106.4)}$ = 2.742 10^{-14} flux tubes/m^3 $\quad\quad$ 0.211 /5.1 10^{-7} = 4.137 10^5 (ratio)
$\quad\quad$ (4.137 10^5)^3 = 7.08 10^{16} at/m^3

Volume Sun $1.437\ 10^{27}$ m^3 density N_o/vol $= 8.75\ 10^{57}$ /$1.437\ 10^{27}$ $= 6.089\ 10^{30}$ at/m^3
$(6.089\ 10^{30}$ /$7.08\ 10^{16} = 8.60\ 10^{13})$ x $2.742\ 10^{-14} = 2.35$ Tesla/m^3
Magnetic energy 2.36^2 /$4\pi\ 10^{-7} = 4.43\ 10^6$ Joule/m^3
$R_{dm} = R_o$ Follow Earth magnetic field calculation
$1.437\ 10^{27}$ /$7.08\ 10^{16} = 2.03\ 10^{10}$ $6.089\ 10^{30}$ /$(7.08\ 10^{16}$ x $2.03\ 10^{10}) = 4237$
So 1000 Tesla at surface
$(6.089\ 10^{30}$ x 4237 /$7.08\ 10^{16} = 3.644\ 10^{17})$ $2.742\ 10^{-14} = 999.2$ Tesla
In energy B^2 /$4\pi\ 10^{-7} = 7.95\ 10^{13}$ Joule

Discussion
Earth laboratory experiments are in the order of 100 T at max. So 1000 T seems not impossible in a solar situation. The polarity of the magnetic field stays the same unless due to fusion burning the instability in dark matter exchange is activated which is derived in chap 4 exercise 6 and 7.

SUN II

$M = 2\ 10^{30}$ kg	$R_o = 8.56\ 10^9$ m	$g = 1.842$ m/sec^2	$\omega = 25.4$dd $= 4.557\ 10^{-7}$ Hz

$\lambda = 1500$ m $\sqrt{\lambda} = 38.7$ m $w_{esc} = 8.97\ 10^{-2}$ eV $\Delta N_{esc} = 1.528\ 10^4$
$N_o = 8.75\ 10^{57}$ dm at $N_{esc} = 7.57\ 10^{26}$ at

Internal dm parameters
$R_{dm} = 6.944\ 10^7$ m $N_{dm} = 9.342\ 10^{28}$ at $R_{rec} = 14.52$ $c/R_o = 1$ /28.53 Hz

Dark matter dipole $n_{gear} = 8.56\ 10^9$ /$6.944\ 10^7 = 123.3$
    $4.557\ 10^{-7}$ x $6.944\ 10^7 = 31.6$ 31.06 /$28.53 = 1.109$
    $(4.557\ 10^{-7}$ / $1.109)$ x $6.944\ 10^7 = 28.53$ $\omega_{dm} = 4.109\ 10^{-7}$ x $123.3 = 5.067\ 10^{-5}$ Hz
    Take R_{dm} /$\sqrt{2} = 4.910\ 10^7$ m ω_{dm} can be recalculated.
    $4.557\ 10^{-7}$ x $4.910\ 10^7 = 22.38$ 28.53 /$22.38 = \underline{1.275}$ cos $38°.34 = 1/1.275$
    $4.557\ 10^{-7}$ x $4.910\ 10^7$ /cos $38°.34 = 28.53$

Dm volume $(6.944\ 10^7)^3 = 3.348\ 10^{23}$ m^3
    N_{dm} /vol $= 9.342\ 10^{28}$ /$3.348\ 10^{23} = 2.79\ 10^5$
    $\Delta N_{esc} = 1.528\ 10^4$ $2.79\ 10^5$ /$1.528\ 10^4 = 18.26$ $18.26/R_{rec}$ $(14.52) = \underline{1.258}$

Dm precession
    1.842 (h/c) x $2\pi\ 4.557\ 10^{-7}$ x $8.56\ 10^9$ /$251\ m_e = 1$ /$2.29\ 10^9$ sec /$3.154\ 10^7 = 72.7$ yrs
    To be divided by 28.5 giving 2.55 yrs for the dm inversion over 72.7 x 28.5 = 2072 yrs period. The inversion impulse of 28.5 has to come into consideration, see above calibration. Both options for 28.5 are possible suggesting co- or counter rotation respectively.

Discussion
$N_{dm} = \sqrt{N_o} = 9.354\ 10^{28}$ dm atoms gives the lowest gravity for the solar mass which is only an educated guess considering the other calculation given below. During the solar diameter contraction up to $7\ 10^8$ m as the smallest long standing radius the monthly rotation around the solar axis is constant while the precession cycle frequency changes, from 2074 yrs to 11 yrs. Obviously this contraction cannot be smooth without irregularities. It suggests instabilities during the solar evolution as is shown above by taking a dm radius of $(6.944\ 10^7$ / $\sqrt{2})$ m by the acceleration parameter of $\sqrt{2}$. Here in the calculation the cos $38°.34$ gives the impression of the dm rotation plane tilting from the equatorial plane either diminishing R_o or to resettle after acceleration as a consequence of instability in fusion burning.

<div align="center">EARTH I</div>

$M = 5.98(6.0)\ 10^{24}$ kg $\quad R_o = 6.4\ 10^6$ m $\qquad g = 9.8(10)$ m/sec^2 $\qquad \omega = 24$ hrs $= 1.1574\ 10^{-5}$ Hz

$\lambda = 4.5\ 10^{-3}$ m $\qquad \sqrt{\lambda} = 6.71\ 10^{-2}$ m $\qquad w_{esc} = 1\ /60$ eV $\qquad \Delta N_{esc} = 2.84\ 10^3$
$N_o = 2.624\ 10^{52}$ dm at $\qquad\qquad\qquad\qquad N_{esc} = 3.04\ 10^{24}$

Internal parameters
$R_{dm} = 2620$ m $\qquad\qquad N_{dm} = 5.139\ 10^{17}$ at $\qquad R_{rec} = 1.206\ 10^9$ $\qquad c/R_o = 46.9$ Hz

Dark matter dipole $R_{dm} = 2620$ m $\qquad\qquad n_{gear} = 6.4\ 10^6\ /2620 = 2443$
$\qquad 1.1574\ 10^{-5}$ x $1842 = 1\ /46.9$ $\qquad 2620\ /1852.6 = \sqrt{2}$
$\qquad 1.1574\ 10^{-5}$ x $1852.6 = 1\ /46.64$ $\qquad 1.1574\ 10^{-5}$ x 46.64 x $1852.6 = 1$
$\qquad \omega_{dm} = 5.398\ 10^{-4}$ x $2443 = 1.319$ Hz $\qquad 46.9\ /46.64 = 1.0056$ $\quad$ or $46.64/33.0 = \sqrt{2}$
$\qquad 1.1574\ 10^{-5}$ x $2620\cos 45^o = 1\ /33.0$ $\qquad$ instability option for inversion of precession
Or by inversion boosting
$\qquad 1.1574\ 10^{-5}$ x $4.0522\ 10^6 = 46.9$ $\qquad 46.9$ x $1\ /46.9 = 1$ $\qquad 46.9^2 = 2199.6$
$\qquad 1852.6$ x $2199.6 = 4.075\ 10^6$

Other dm scaling $\qquad R_{dm}^3 = 2620^3 = 1.80\ 10^{10}$ m^3 $\qquad N_{dm} = 5.139\ 10^{17}$ $\qquad \sqrt{} = 7.169\ 10^8$
$\qquad R_{rec}\ /7.169\ 10^8 = 1.687$ $\qquad\qquad 1.687^2 = 2.846$ $\quad 2\sqrt{2} = 2.82843$ $\qquad$ dev $= 1.0062$
$\qquad 3.364^2 = 2$ x $4/3$ x $3\sqrt{2} = 11.314$ $\qquad 2620^3\ /1.209\ 10^9\ (R_{rec}) = 14.925$
$\qquad 14.025\ /11.314 = \underline{1.32}$

$\qquad \Delta N_{esc} = 2.84\ 10^3\ 11.314^3 = 1448$ $\qquad\qquad 2$ x $1448 = 2896$ $\qquad$ dev 1.02

Dm precession
$\qquad 705$ x $3.154\ 10^7 = 2.22\ \ 10^{10}$ sec $\qquad 705\ /33.0 = 22.4$ yrs as dm inversion
$\qquad$ and 705 x $33.0 = 23.3\ 10^3$ yrs precession period. Perhaps more 22.4 yr instabilities of
$\qquad$ turnovers are possible. Because it is an energy driven dm dipole the echo impulse of 33.0 can
$\qquad$ go both ways.

Discussion
$\qquad$ From the dipole rotation tilted at an angle of 45° from the equatorial plane. Small deviations
$\qquad$ cause one time, the dipole to rotate faster and after losing energy returns to the slow rotating
$\qquad$ position. The plane of 45° stays in position with small deviations up or below this plane.
$\qquad$ Probably representing phase forward. In that case the magnetic field polarity changes sign.
$\qquad$ The ω_{dm} of 1.310 Hz is no problem because the inertia of the d dipole is neglectable, see also
$\qquad$ remark for Mars below.

<div align="center">EARTH MAGNETIC FIELD</div>

Return to exercise 3 and 4 in chap 3:
$\qquad C_g = 7.9\ 10^{-26} = B^2\ \lambda_g$ $\qquad\qquad \lambda_g = 0.211$ m $\qquad\qquad n_g = 1\ /0.211^3 = 106$ at/m^3

$\qquad B = \sqrt{(7.9\ 10^{-26}\ /106.4)} = 2.742\ 10^{-14}$ flux tubes/m^3 $\qquad 0.211\ /5.1\ 10^{-7} = 4.137\ 10^5$ (ratio)
$\qquad (4.137\ 10^5)^3 = 7.08\ 10^{16}$ at/m^3
$\qquad$ Density/vol Earth $\qquad 2.624\ 10^{52}\ /4/3\pi\ (6.4\ 10^6)^3 = 2.39\ 10^{31}$ at/m^3
$\qquad\qquad\qquad\qquad \{2.39\ 10^{31}\ /7.08\ 10^{16} = 3.375\ 10^{14}\}\ 2.742\ 10^{-14} = 9.2$ Tesla/m^3

$\qquad$ Magnetic energy $\qquad 9.2^2\ /4\pi\ 10^{-7} = 6.74\ 10^7$ joule /m^3

$\qquad$ Earth magnetic field $5.0\ 10^{-5}$ Tesla giving $\qquad 2.21\ 10^{18}$ J
$\qquad$ Magnetic dm volume $\quad 6.74\ 10^7\ V_x = 2.21\ 10^{18}$ $\quad V_x = 3.26\ 10^{10}$ m^3
$\qquad\qquad R_{dm} = 2620$ m $\qquad\qquad$ cubic volume $\qquad 2620^3 = 1.8\ 10^{10}$ m^3

Discussion

The choice of the minimum magnetic field for the dm volume is correct if the error surface magnetic field is about 1% . It means the ratio of 3.26/1.8 = 1.81 while $1.5^{3/2}$ = 1.84. Perhaps too far fetched but in Jupiter calculation shows something similar.

There should be a distinction between passive dm gravity generation and the active one which was not directly clear from solar calculations. As well, Earth as Jupiter have sufficient inertia energy generation due to hydraulic gravity compression. For Earth fission production, for Jupiter and Sun fusion burning. The other active energy production in Saturn, Neptune or Uranus are not considered. Apparently Mercury, Mars and Moon are passive dm steady states for gravity generation. No magnetic dipole fields at the surface are observed, at least neglectable. For Venus magnetic field generation seems possible because the dm cubic volume is greater than R_{rec} but not further considered.

EARTH II

M = $6.0\ 10^{24}$ kg	R_o = $1.423\ 10^7$ m	g = 2 m/sec^2	ω = $1.1574\ 10^{-5}$ Hz

λ = $4.5\ 10^{-3}$ m $\sqrt{\lambda}$ = $6.71\ 10^{-2}$ m   ` w_{esc} = $1.618\ 10^{-4}$ eV ΔN_{esc} = 27.52
N_o = $2.624\ 10^{52}$ dm at N_{esc} = $3.085\ 10^{25}$ at

Dark matter internal parameters
R_{dm} = 5329 m N_{dm} = $4.325\ 10^{18}$ at R_{rec} = $2.68\ 10^9$ $c/1.423\ 10^7$ = 21.1 Hz

Dark matter dipole R_{dm} = 5329 m n_{gear} = $1.423\ 10^7 /5329$ = 2670
        $1.1574\ 10^{-7}$ x 5329 = 1 /16.2   21.1 /16.2 = 1.301   cos 40°.12 = 1 /1.301
        $1.1574\ 10^{-7}$ x 5329 cos 40°.12 = 1 /21.1 $1.1574\ 10^{-4}$ x 21.1 = $2.442\ 10^{-4}$ Hz
        ω_{dm} = ($2.442\ 10^{-4}$ /1.301) x 2670 = 0.5012 Hz
Or by inversion boosting using the instability condition
        $1.1574\ 10^{-5}$ x $1.827\ 10^6$ = 21.1 21.1^2 = 445.2   5329 / $\sqrt{2}$ = 3768 m
        3768 x 445.2 = $1.678\ 10^6$ 1.827 /1.678 = 1.08904   cos 23°.3 = 1 /1.08904

Dm precession
        $5\ 10^9$ sec x $3.154\ 10^7$ = 158.5 yrs   Divide by either 16.2 or 68.8 gives a cycle either 9.8 or 2.3 yrs becomes a dm inversion period. It seems that multiplying by 16.2 or 68.8 the inversion period is longer than 158.5 yrs, so not realistic. It also gives an impression of the range during contraction of the earth radius.

Discussion
        The drop from 16.2 to 68.8 Hz slowing down the steady state angular impulses of the dm medium seems not a problem during the Earth evolution. Although here in the calculation the two options are given.
        For g = 1 m/sec^2 the radius R_o = $2.012\ 10^7$ m. In that case N_{dm} = $2.33\ 10^{29}$ dm atoms which exceeds $\sqrt{N_o}$ = $1.62\ 10^{26}$ at. Not shown explicitly but $\sqrt{N_o}$ is expected to be a limit giving the lowest condition to generate a separated macro mass.

MOON

M = $7.35\ 10^{22}$ kg	R_o = $1.738\ 10^6$ m`	g = 1.622 m/sec^2	ω = 29.5 dd = $3.9234\ 10^{-7}$ Hz

λ = $5.45\ 10^{-5}$ m $\sqrt{\lambda}$ = $7.38\ 10^{-3}$ m w_{esc} = $1.605\ 10^{-5}$ eV ΔN_{esc} = 2.73
N_o = $3.215\ 10^{50}$ at N_{esc} = $1.0844\ 10^{25}$

Internal dm parameters
R_{dm} 167.1 m N_{dm} = $1.002\ 10^{17}$ at R_{rec} = $2.184\ 10^{12}$ c /R_o = <u>172.7</u> Hz

Dark matter dipole R_{dm}: 167.1^2 =$2.792\ 10^4$ n_{gear} = $1.738\ 10^6 /167.1^2$ = 62.2

$\omega_{dm} = 62.2 \times 3.92 \ 10^{-7} = 2.44 \ 10^{-5}$ Hz $\underline{172.6} /62.2 = 2.775$
$2.44 \ 10^{-5} \times \cos58^o.1 \times 2.792 \ 10^4 = 1 \ /2.775$ $2.775 /1.468 = 1.89$ $\cos 58^o.10 = 1 /1.89$

Dm vol $167.1^3 = 4.666 \ 10^6$ m^3 $\sqrt{R_{rec}} = \sqrt{2.184 \ 10^{12}} = 1.478 \ 10^6$
$4.666 \ 10^6 /1.478 \ 10^6 = 3.157$ $3.634 /3.157 = 1.065$ $\sqrt{11.314} = 3.634$

$N_{dm} /R_{rec} = 1.002 \ 10^{17} /2.184 \ 10^{12} = 4.587 \ 10^4$ $\sqrt{} = 214.1$ $\Delta N_{esc} \ 2.73$ $\sqrt{} = \underline{1.653}$
$214.1 /167.1 = \underline{1.642}$

Dm precession $1.884 \ 10^{13} /3.154 \ 10^7 = 5.92 \ 10^5 /91.3 = 6.5 \ 10^3$ yrs. There is no 'dm inversion' by
multiplying with $172.6 /1.89 = 91.3$

Discussion

The dm dipole is subjected to frequency halving getting quadratically longer which speeds up
internally the rotation to $2.44 \ 10^{-5}$ Hz. Most likely the dipole is in the equator reducing this
rotation with $\cos58^o.1$ to comply with required echo value.

ΔN_{esc} gets close to the limit of the Lamb shift gap which suggests a limit to gravity
generation. The dm volume is greater than R(reciprocal) while the number of dm atoms to
R(rec) relates to statistics between $\sqrt{N_o}$ and N_{esc} where 1.653 is the deviation of the mean
given by 2.73 which here is small.

$$\text{MARS}$$
$M = 6.423 \ 10^{23}$ kg $R_o = 3.393 \ 10^6$ m $g = 3.72$ m/sec^2 $\omega = 24.68$ hrs $= 1.1264 \ 10^{-5}$ Hz

$\lambda = 4.76 \ 10^{-4}$ m $\sqrt{\lambda} = 2.182 \ 10^{-2}$ m $w_{esc} = 7.18 \ 10^{-5}$ eV $\Delta N_{esc} = 12.23$
$N_o = 2.8105 \ 10^{51}$ at $N_{esc} = 1.5 \ 16 \ 10^{25}$ at

Internal dm parameters
    $R_{dm} = 1584$ m $N_{dm} = 3.315 \ 10^{18}$ at $R_{rec} = 5.5794 \ 10^{10}$ $c/R_o = 88.4$ Hz
Dark matter dipole $R_{dm} = 1584$ m $n_{gear} = 3.396 \ 10^6 /1584 = 2142$
    $1.1264 \ 10^{-5} \times 1004.3 = 1 \ /88.4$ $1584 /1004.3 = 1.577$
    $1.1264 \ 10^{-5} \times 1584 \times 88.4 /1.577 = 6.314 \ 10^{-4} \times 1584 = 1$
    $\omega_{dm} = 6.314 \ 10^{-4} \times 2142 = 1.352$ Hz

Dm vol $1583^3 = 3.974 \ 10^9$ m^3 $N_{dm} = 3.308 \ 10^{18}$ $\sqrt{} = 1.8173 \ 10^9$
    Vol $/\sqrt{N_{dm}} = 3.974 \ 10^9 /1.8173 \ 10^9 = 2.187$ $R_{rec} /\sqrt{N_{dm}} = 5.579 \ 10^{10} /1.8173 \ 10^9 = 30.70$
    $\Delta N_{esc} = 12.23$ $30.70 /12.23 = 2.510$ $2.51 /2 = 1.256$ compare to $1004.3 / 792.5 = 1.267$

Dm precession
    $3672 \times 3.154 \ 10^7$ sec or $3672 /69.75 = 52.6$ yrs. Multiplying of 69.75 gives 'dm inversion'
    greater than 3672 if the dm dipole is not energy driven.

Discussion

The dm dipole keeps its length of 1584 m but has a high rotation up to 1.352 Hz which is not
too much because coherent organized dm cells have hardly any inertia. The dipole rotates in
the equatorial plane.
It seems that in the present-day state Mars can only be a passive steady state and has no
possibility to generate a magnetic field. Maybe because R(reciprocal) is greater than the
dipole cubic volume. The statistics between $\sqrt{N_o}$ and N_{esc} is 12.23 as meaning having square
root of it as deviation.

<div align="center">MERCURY</div>

$M = 3.229\ 10^{23}$ kg $\qquad R_o = 4.868\ 10^6$ m $\qquad g = 0.9089$ m/sec^2 $\qquad \omega = 58.65$ dd $= 1.9734\ 10^{-7}$ Hz

$\lambda = 2.393\ 10^{-4}$ m $\qquad \sqrt{\lambda} = 1.552\ 10^{-2}$ m $\qquad w_{esc} = 1.0494$ eV $\qquad \Delta N_{esc} = 17.88$
$N_o = 1.412\ 10^{51}$ at $\qquad\qquad\qquad\qquad N_{esc} = 8.89\ 10^{24}$ at

$\qquad R_{dm} = 161.3$ m $\qquad N_{dm} = 9.73\ 10^{15}$ $\qquad R_{rec} = 3.163$ $\qquad c\,/R_o = \underline{61.63}$ Hz

Dark matter dipole R_{dm}: $161.3^2 = 2.602\ 10^4$ m^2 $\qquad n_{gear} = 4.868\ 10^6\,/161.3^2 = 187.1$
$\qquad \omega_{dm} = 1.9734\ 10^{-7} \times \underline{61.63} = 1.216\ 10^{-5}$ Hz $\qquad 187.1\,/\underline{61.63} = 3.044$
$\qquad 1.216\ 10^{-5} \times 2.602\ 10^4\,/\cos15°.55 = 1\,/3.044$ $\qquad 3.16\,/3.044 = 1.038$ $\qquad \cos15°.55 = 1\,/1.038$

Other dark parameters
$\qquad R_{rec}\,/N_{dm} = 9.73\ 10^{15}\,/3.163\ 10^{11} = 3.076\ 10^4 = 175.4^2$ $\qquad 175.4\,/3.16^2 = 17.56 = 161.3\,/3.03^2$
$\qquad \Delta N_{esc} = 17.88$ $\quad 17.88\,/17.56 = 1.017$ $\quad 3.16\,/3.03 = 1/043$

Dm precession
$\qquad 1.884\ 10^{13}$ sec $/3.154\ 10^7 = 5.972\ 10^5$ yrs divide by $61.3 = 9.74\ 10^3$ years. Similar as Moon
$\qquad$ and Mars.

Discussion
$\qquad$ Like the moon the dm dipole plane in diameter of 2 x 161.3 m is too small which means
$\qquad$ halving the frequency making the dipole quadratically longer. The dipole stays probably in
$\qquad$ the equator so the internal rotation of the dipole can adapt to the echo condition with the
$\qquad \cos15°.55$ which seems to be small enough to a slight tilt. It seems that the number of N_{dm} can
$\qquad$ never be contained within the cubic dm volume of 161.3^3 m^3.

<div align="center">VENUS</div>

$M = 4844\ 10^{24}$ kg $\qquad R_o = 6.05\ 10^6$ m $\qquad g = 8.83$ m/sec^2 $\qquad \omega = 243.1$ dd $= 4.761\ 10^{-8}$ Hz

$\lambda = 3.59\ 10^{-3}$ m $\qquad \sqrt{\lambda} = 5.992\ 10^{-2}$ m $\qquad w_{esc} = 3.037\ 10^{-4}$ eV $\qquad \Delta N_{esc} = 51.73$ ($\sqrt{}$ dev $= 7.19$)
$N_o = 2.12\ 10^{52}$ at $\qquad\qquad\qquad\qquad N_{esc} = 2.024\ 10^{25}$ at

Internal dm parameters
$\qquad R_{dm} = 1.378\ 10^4$ m $\qquad N_{dm} = 1.05\ 10^{17}$ at $\qquad R_{rec} = 1.749\ 10^7$ $\qquad c/R_o = 49.59$ Hz

Dm dipole R_{dm} : $(1.378\ 10^4)^2 = 1.90\ 10^8$ m^2 $\qquad n_{gear} = 6.05\ 10^6\,/1.378\,10^4 = 439$
$\qquad 439\,/49.59 = 8.853$ $\qquad 8 \times 1.378\ 10^4 = 1.102\ 10^5$ m $\qquad 8.853\,/8 = 1.107$
$\qquad 2.025\ 10^{-7} \times \cos25°.4 \times 1.102\ 10^5 = 1\,/49.59$ $\qquad \cos25°.4 = 1/1.107$ $\qquad \omega_{dm} = 2.025\ 10^{-7}$ Hz
Dark matter volume and N_{dm}
$\qquad$ Vol$/R_{rec} = (1.378\ 10^3)^3\,/\,1.749\ 10^7 = 149.6$ $\qquad N_{dm} = 1.05\ 10^{17}$ $\qquad \sqrt{} = 3.24\ 10^8$
$\qquad 1.749\ 10^9\,/3.24\ 10^8 = 5.398$ $\qquad 3\sqrt{2} = 4.243$ $\qquad 5.398\,/4.243 = 1.26$
$\qquad \Delta N_{esc} = 51.7$ $\quad \sqrt{} = 7.190$ $\qquad 1.496 \times 7.190 = 8.075$ $\quad 8.075\,/\,7.190 = 1.26^2$
$\qquad$ while $49.59\,/39.08 = 1.27$

Dm precession
$\qquad 6.474\ 10^{12}$ (sec)$/3.154\ 10^7 = 2.05\ 10^5$ yrs (divide by 49.59) $= 4.14\ 10^3$ yrs . Multiplying of
$\qquad 49.6$ gives 'dm inversion' longer than $2.0\ 10^5$ yrs, not realistic.

Discussion

Compared to Earth and Mars, Venus is in its slow monthly rotation. It does not allow rotation of the dm dipole by quadrating $1.378 \cdot 10^8$ the diameter, probably because Mercury has been separated. The factor 8 for the dipole comes most likely from boosting according to $2 = 4/3 \times 3/2$ in the three cubic directions for the occupation of the dipole dm volume. Also the dm dipole is in the equatorial plane.

MERCURY AND VENUS HAVE THE SAME ORIGIN

Compare the data sets of both

	Mercury			Venus
M	$3.229 \cdot 10^{23}$	kg		$4.844 \cdot 10^{24}$
ω	$1.973 \cdot 10^{-7}$	Hz		$4.761 \cdot 10^{-8}$
R_o	$3.393 \cdot 10^6$	m		$6.05 \cdot 10^6$
g	0.91	m/sec^2		8.83

Calculate $\omega M R_o /g$

	$2.162 \cdot 10^{23}$	kg m/sec	$1.40 \cdot 10^{24}$	
(1)	$1.97 \cdot 10^{23}$	1.28	$1.53 \cdot 10^{23}$	
(2)	$2.38 \cdot 10^{23}$	1.55	$1.53 \cdot 10^{23}$	

Discussion

In (1) 2.162 is multiplied by 0.91 and 1.40 divided by the same factor.
In (2) 2.162 is divided by 0.91.
In the sense of physics, in case the driven angular momentum by gravity is conserved then both ω's of Mercury and Venus are shared. Initial condition 1.97 and $1.53 \cdot 10^{23}$ with the end result respectively 2.162 and $1.40 \cdot 10^{23}$ kgm /sec. For an intermediate medium this process is not impossible.

The common origin of Earth and Moon

Compare data sets

	Earth			Moon
M	$6. \cdot 10^{24}$	kg		$7.35 \cdot 10^{22}$
ω	$1.1574 \cdot 10^{-7}$	Hz		$3.923 \cdot 10^{-7}$
R_o	$6.4 \cdot 10^6$	m		$1.738 \cdot 10^6$
G	9.8	m/sec^2		1.622

Calculate $\omega M R_o /g$

	$4.44 \cdot 10^{25}$	kg m/sec	$3.09 \cdot 10^{22}$	
Ratios:	1438.2	and g's:	9.8 /1.622 = 6.042	
	$1438.2 = (6.16)^4$			

Discussion

This result is speculative but still fun because of the accuracy The deviation ratio is 1.020 to the 4th power it is still 1.082 small as the error in the calculations is about 1.5%.

JUPITER

$M = 1 /1047.4$ Sun $= 1.91 \cdot 10^{27}$ kg $R_o = 6.905 \cdot 10^7$ m $g = 26.7$ m/sec^2 $\omega = 11.86$ yrs

$\lambda = 1.4155$ m $\sqrt{\lambda} = 1.19$ m $w_{esc} = 1.0491$ eV $\Delta N_{esc} = 1.787 \cdot 10^3$
$N_o = 8.354 \cdot 10^{54}$ at $N_{esc} = 6.93 \cdot 10^{25}$ at

Internal dm parameters
$R_{dm} = 2.732 \cdot 10^6$ m $N_{dm} = 1.0446 \cdot 10^{23}$ at $R_{rec} = 1.315 \cdot 10^5$ $c/R_o = 1 /23.02$

Dark matter dipole $R_{dm} = 2.732 \ 10^6$ m $\omega = 11.86$ yrs $= 2.67334 \ 10^{-9}$ Hz

$2.673 \ 10^{-9}$ x $8.611 \ 10^9 = 23.02$ $\sqrt{8.611 \ 10^9} = 9.28 \ 10^4 < 2.732 \ 10^6$ m

Therefore ω of 11.86 yrs has to be a precession and not main axis rotation.

Dm precession: working backwards

26.7 (h/c) $2\pi \ \omega_1$ x $6.905 \ 10^7 = 2.973 \ 10^{-9}$ x 251 m_e $\omega_1 = 2.388 \ 10^{-5}$ Hz

$\omega_1 \ R_{dm} = 65.23 \ /23.02 = \underline{2.834}$ $\omega = 2.388 \ 10^{-5} \ /2 = 1.194 \ 10^{-5}$ Hz

Again dm dipole

$1.194 10^{-5}$ x $2.732 \ 10^6 \ /\cos 45^\circ = 23.07$ $2\sqrt{2} = \underline{2.828427}$

$1.0372 \ 10^{-6}$ x ($2.732 \ 10^6 \ /\cos 45^\circ) \cos 25^\circ.61 = 20.8$ with $2 = 1.5$ x $4/3$

$23.07 \ /20.8 = 1.1089$ $\cos 25^\circ.61 = 1 \ \underline{/1.1089}$ {$65.23 = 1.96 \ 10^{10}$ (m)/c $= 297 \ R_o$}

$25.27 \ /1.1946 \ 10^{-5} = 2.116 \ 10^6$ sec $= 24.50$ dd   or $(1 \ /2.116 \ 10^6)$ Hz and not 11.86 yrs!

Therefore the $\omega = 23.3$ hrs of day rotation of dm dipole based on echo exchange of 23.02 for R_o . This rotation is delayed by the ratio $6.905 \ 10^7 \ /2.732 \ 10^6 = 25.27$ driven by $2\sqrt{2}$ exchange due to formation of a dipole magnetic field accelerating inertia matter from the internal dm dipole to boundary R_o .

Discussed in the next section. Note $2.6733 \ 10^{-9}$ Hz   with reciprocal $3.74064 \ 10^8$

$=$

11.86 x $3.154 \ 10^7$ sec. The dm inversion follows Sun's consideration for the precession.

With respect to the outer radius of $6.905 \ 10^7$ m the rotation is:

$(2.388 \ 10^{-5} \ /65.23 = 3.661 \ 10^{-7})$ x $6.905 \ 10^7 \cos 24^\circ.43 = 23.02$

$71.65 \ /65.23 = 1.0983$ $\cos 24^\circ.43 = 1 \ /1.0983$ $71.65 \ /23.02$ defines braking

Showing a delay due to braking rotation internally opposing observed rotation.

Dm volume $(2.732 \ 10^6)^3 = 2.039 \ 10^{19}$ $N_{dm} = 1.045 \ 10^{23}$ at

$N_{dm} \ /vol = 5125$ at/m^3 $N_{esc} \ /N_{dm} = 654.3$ 5125 x $654.3 = 1.335 \ 10^6$ at/m^3

Line density $3.335 \ 10^6 \ /2.732 \ 10^6 = 1.227/(1.5) = 1.0021$ at/ m

$R_{dm}/R_{rec} = 20.8$ $R_{rec}/ \ \Delta N_{esc} = 1.315 \ 10^5 \ /1.738 \ 10^3 = 73.6 \ (/20.8) = 3.538(/3) = \underline{1.18}$

$23.02 \ /20.8 = \underline{1.107}$

Note $1.0446 \ 10^{23} = (5.685 \ 10^5)^4$ $5.685 \ 10^5 \ /1.315 \ 10^3 = 4.322 \ (/3\sqrt{2}) = 1.013$

$4.323 \ /3.538 = 1.222 \ (\sqrt{1.5}) = 1 \ / \ 1.002$

Discussion

The educated guess for the precession worked out good. In terms of physics the red eye observed at the surface of Jupiter should follow the precession of 11.86 years. The dm inversion of the dm dipole for 45° can has phase forward drive changing the polarity of the magnetic field, complicating the our simple idea into node formation over the ratio of 25.27 from inner dipole to outer radius. Inertia magnetic modeling for this complex behavior is required.

JUPITER MAGNETIC FIELD AT SURFACE

Return to exercise 3 and 4 chap 3

C_g is $7.9 \ 10^{-26} = B^2 \ \lambda_g$ $\lambda_g = 0.211$ m $n_g = 1 \ /0.211^3 = 106$ at/m^3

$B = \sqrt{(7.9 \ 10^{-26} \ /106.4)} = 2.742 \ 10^{-14}$ flux tubes/m^3 $0.211 \ /5.1 \ 10^{-7} = 4.137 \ 10^5$ (ratio)

$(4.137 \ 10^5)^3 = 7.08 \ 10^{16}$ at/m^3

Density/vol Jupiter $8.534 \ 10^{54} \ /4/3\pi \ (6.905 \ 10^7)^3 = 6.057 \ 10^{30}$ at/m^3

{$6.057 \ 10^{30} \ /7.08 \ 10^{16} = 8.556 \ 10^{13}$} $2.742 \ 10^{-14} = 2.346$ Tesla/m^3

Magnetic energy $2.346^2 \ /4\pi \ 10^{-7} = 4.38 \ 10^6$ joule /m^3

Earth magnetic field $5.0 \ 10^{-5}$ Tesla giving $2.21 \ 10^{18}$ J/m^3

Magnetic dm volume

$R_{dm} = 2.732 \ 10^6$ m   cubic volume $(2.732 \ 10^6)^3 = 2.039 \ 10^{19}$ m^3
Take density of above N_{esc} /vol   3.335 10^6 at/m^3 $(3.335 \ 10^6)^3 = 3.77 \ 10^{19}$ at
Compare   3.77 10^{19} /7.08 10^{16} = 532

So enhancement of the magnetic field
(6.057 10^{30} x 532 /7.08 10^{16} = 4.551 10^{16}) 2.742 10^{-14} = 1.25 10^3 T/m^3
B^2 / 4π 10^{-7} = 1.24 10^{12} J/m^3 times dm volume   2.039 10^{19} m^3
Divided by volume Jupiter 1.379 10^{24} :   (B^2/4π 10^{-7}) or B^2 = 23.2.
So B = 4.8 T at the surface.

Discussion
The steady state magnetic field changes polarity due to the above instability option.
As a consequence of the magnetic dipole field inner inertia matter, methane, hydrogen etc.
is transferred to the surface generating the Red Eye which is the precession of Jupiter.
Note that the factor $(1.22)^3 = 1.83$ derived above, enhances the dark matter volume according
to the calibration of the dm volume calculation of Earth.

Par 1.4 Overall conclusion

Viewing the different situations between stars, planets or moons some general laws can be deduced.

There exists a passive and an active steady state process in reaction to gravity generation.
Under the active process we see that due to hydraulic compression of inertia matter occurs
which releases energy in any possibility. This has two consequences, one generation of a
magnetic field on top of the steady state for dark matter of which the last cannot be
compressed. So hydraulic compression of matter has either no additional release of energy or
the generation of most likely a magnetic dipole field needing additional energy. If no
additional energy is generated then the moon or planets are in a solid state condition.
Secondly one can expect phase forward drive due to steady state acceleration of the dark
matter internally. So the dark matter lossless collision interaction enhances the kinetic energy
of inertia atoms. Phase forward is needed to maintain the magnetic field or work as a
consequence of braking and phase forward translates in smaller echo times for the macro
angular momentum obviously not exceeding the ½√2c limit for the dm cells. In the passive
state phase forward synchronization does not seem possible.

The other interesting discovery was the polarity change for the dipole of the magnetic field
which follows the precession rotation. The polarity change seems to be a consequence of the
instability action on the dm dipole which drives the rotation of the macro mass. One polarity
change in a precession cycle is not a restriction, more than one is possible as long as the dm
instability is driven by inertia energy.

Note, the precession rel (5) in par 1.3 has the $\omega_o^2 = \omega \ \omega_{prec}$ as parameters. This is asymmetric in the
equality with respect to 2π because this factor is included in ω. Correcting for this makes (251 /2π)
then giving up the understanding in this equality to this ratio as the mediating mass.
The conclusion is also that the precession is a dm dipole and therefore independent of the plane of
rotation for the outer rotation of the macro mass. Just write the equality in (5) for the precession
algebraically conform to the equality of the dm dipole R_{dm} with echo time c/R_o in it. It shows why this
echo factor comes in the equality of (5) for the precession with R_o which is the precession dipole
radius. So (5) has to be independent of the dm dipole rotation in the equatorial plane.
The dm precession equality becomes: g h 2$\pi\omega$ /(251 m_e) = 1 /ω_{prec}

The time lapse for dm inversion is the consequence where the factor (R_o/c) is the reciprocal of the
right hand side in the precession equality   g (h/c) ω_o^2 R_o /(251 m_e) = c /R_o
By elimination R_o and g = λc^2 /R_o^2 this equality becomes λ h ω_o^2 = 251 m_e in which also ω =
2πc /√λ is not allowed next to ω_{prec} as a parameter. In case √λ instead of λ then this is not

dimensionally correct and ω should always be the given observed rotation. This gives the option for the time lapse dm inversion. Namely in one state the echo factor c/R_o is correct for steady state of the precession and in the next λ-time lapse (trigger) the reciprocal of the echo optionally might happen. So in some cases the time lapse dm inversion is a reality. It is valid that the dm dipole approaches an instable situation of say $\cos45^o$. This was tried to sort out in the above calculations of the precession.

Comment
A first step for above calculation of the dm dipole was without the parameter n_{gear} . This resulted in the idea of the tilt of the rotation plane to the equator, not explicitly shown in above calculated results any longer. By introducing n_{gear} this additional parameter showed in fact that the dipole did not need to be tilted from the equator plane. In the sense of physics it means that the dm dipole might flip over from co- to anti-rotation or vice versa due to the instability in precession in case of the active energy production by hydraulic compression.

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It was an honour and pleasure to be the one to explore the process of gravity generation by dark matter.

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Foundation Cosmic Field Paradigm ©
.... introductory text on standard particle theory and cosmology, the phenomena explained by them, unsatisfactory features of that explanation, and an alternative approach by the Cosmic Field Paradigm which (supposedly) cures those defects ....