COSMIC BACKGROUND RADIATION

Each sequential galaxy has due to the transformation into the formation of super massive black holes a random exchange of the dark matter medium which is accelerating outwardly. This initial velocity due to the acceleration at some point in time, approaches the c -velocity. So if the end velocity due to acceleration of the dm medium is smaller than the photon propagation than galaxies are observed by red shift distances.
Take Lorentz' contraction L_{ph} and L_o for medium due to acceleration.
$(L_o - L_{ph})\ a_o = ½\ c^2$ $L_{ph} = √¾\ L_o$ $(1 - √¾)\ L_o = ½ \times ¼\ c^2$ $\Delta L = 0.933\ c^2 / a_o$
With the acceleration of a_o and $½\ c_{eff}$ maximum momentum of dm medium.
Contraction is the reciprocal compared to the rest mass energy $m/m_o = √4/3 = 1 /√(\ 1 - ¼\ c^2)$

If $\Delta L = R_H$ Hubble length universe then about $a_o = 6.13\ 10^{-10}$ m/sec^2 $M(universe) = c^2/G\ R_H$
($R_H = 1.37\ 10^{10}$ lyrs) and (1 lyr $= 10^{16}$ m) giving the end acceleration.
Note, M(universe) observed by photons should be $M / M_o = √4/3$ due to medium.
However the a_o acceleration is the onset for the initial condition of the cosmic background and in the end expansion the relaxing goes to the $6.3\ 10^{-10}$ m/sec^2.

1.Define the overall expansion as volume expansion making $\Delta L = R_H^{1/3}$ and the number of galaxies as $N_{gal} = 1.41\ 10^{11}$. So the overall acceleration is given as expanding in three dimensions:
$a_H = N_{gal}^{1/3}\ a_o$ $a_H = 5.21\ 10^3\ a_o$ and $R_H^{1/3} = (1.37\ 10^{26})^{1/3} = 5.16\ 10^8$ m

$a_H = 0.933 \times 9\ 10^{16} / 5.16\ 10^8 = 1.627\ 10^8$ m/sec^2 then $a_o = 1.627\ 10^8 / 5.21\ 10^3 = 3.12\ 10^4$ m/sec^2
$\Delta L = 0.933 \times 9\ 10^{16} / 3.12\ 10^4 = 2.69\ 10^{12}$ m or $2.69\ 10^{-4}$ lyrs
The number galaxies are derived in Genesis completed, par 4.

2.Define the overall expansion as dark matter induction rotation, making $\Delta L = √R_H$ and the number of galaxies as $N_{gal} = 1.41\ 10^{11}$. So the overall acceleration is expanding in two dimensions:
$a_H = N_{gal}^{1/2}\ a_o$ $a_H = 3.76\ 10^5\ a_o$ and $R_H^{1/3} = (1.37\ 10^{26})^{1/2} = 1.17\ 10^{13}$ m

$a_H = 0.933 \times 9\ 10^{16} / 1.17\ 10^{13} = 7.18\ 10^3$ m/sec^2 then $a_o = 7.18\ 10^3 / 3.76\ 10^5 = 1.91\ 10^{-2}$ m/sec^2
$\Delta L = 0.933 \times 9\ 10^{16} / 1.91\ 10^{-2} = 4.40\ 10^{18}$ m or 440 lyrs

3.Define the overall expansion as volume expansion making $\Delta L = R_H^{1/3}$ and the number of galaxies as $N_{gal} = 1.41\ 10^{11}$. So the overall acceleration is given as expanding in three dimensions:
$a_H = N_{gal}^{1/2}\ a_o$ $a_H = 3.76\ 10^5\ a_o$ and $R_H^{1/3} = (1.37\ 10^{26})^{1/3} = 5.16\ 10^8$ m
The galaxies are rotating suggesting a dark matter induction in two dimensions.

$a_H = 0.933 \times 9\ 10^{16} / 5.16\ 10^8 = 1.627\ 10^8$ m/sec^2 then $a_o = 1.627\ 10^8 / 3.76\ 10^5 = 4.33\ 10^2$ m/sec^2
$\Delta L = 0.933 \times 9\ 10^{16} / 4.33\ 10^2 = 1.94\ 10^{14}$ m or $1.94\ 10^{-2}$ lyrs
So the last calculation seems the most plausible.

The escape velocity of the Sun at ΔL is: $v^2 = 2 \times 1500 \times 9\ 10^{16} / 1.94\ 10^{14} = 1.39\ 10^6$
$v = 1180$ m/s while Sun's escape velocity: 620 m/sec. (event horizon Sun: 1500 m)
So the dark matter medium seems to be thermalzing up to 0.02 lyrs with collision velocities of thousand metres per second. Remember 95% of the energy in our cosmos is energy of the dark matter medium. It is ultra light and it cannot be observed easily.

Correction for the amount of baron matter in the galaxies of 5% can be neglected in the first instance because of the square root in N_{gal} but it can be easily corrected. Further the calculation of the sun wheel drive shows a Lamb shift drive for gravity at the onset radius of 0.01 lyrs. Confirming above.

DISCUSSIONS AND DERIVATION OF THE COSMIC ENERGY BALANCE FOR AN ULTRA LIGHT AND FAST PSEUDO VECTOR MEDIUM

Background information 2001 to 2010
Still up to date

Par 1 Introduction
An ultra fast and ultra light dark matter medium having not any coupling to the Maxwell laws of electromagnetism is proposed to explain the dynamic of gravity generation in a macro mass in which the atoms are subjected to coherent quantum mechanics behaviour.

Definition of the pseudo vector medium
For compliance to the mathematics of group symmetry the pseudo vector unit cell consists of three perpendicular vector components, a unit of acceleration, one for spin and the third unit for the vector cross product of both. In nature one recognised the definition as a flywheel of which the spin axis of rotation is horizontal to the force of gravity consequently the flywheel executes a continuous precession if no dissipation occurs.

The pseudo vector medium defined as such has to exist of four independent pseudo cells covering in the Cartesian system the symmetry of the three pseudo vector components. In this manner a medium of infinite randomised cells could exit of which the overall energy is zero, all everything is nullified to each other. Obviously cells could cluster by adding in pairs the acceleration components at best as in coherence, then leaving the spin and precession components is let us say perpetual exchange.
See Fig 2

Fig 1

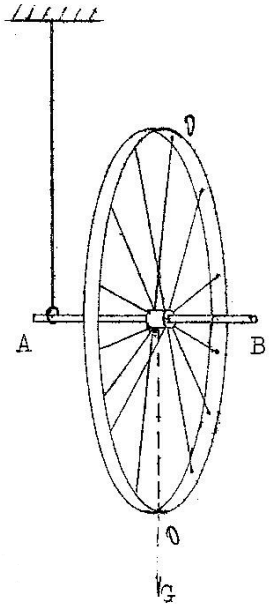
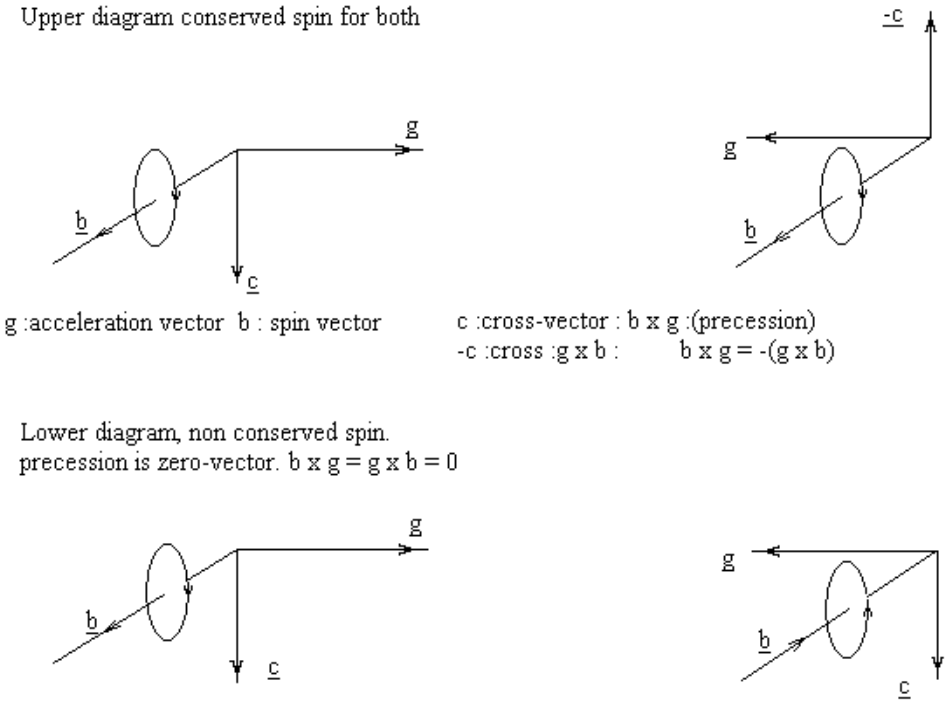


Fig 2



A restriction for such an indestructible mediating medium is the uncertainty wave length of all pseudo cells is much longer than the Compton's length of the electron.

Par 2 The non relativistic cosmic energy balance for the ultra fast and ultra light medium

The pseudo vector medium without the presence of baryonic matter is as follows:

$M(c^2 = ¼\ c^2 + ¾\ c^2)$ with M the mass of the universe as dark matter medium.

The restriction for the medium is that the acceleration components never exceed the ($½\sqrt{2}$ c) end velocity giving ½ c_{eff} as momentum to a pseudo cell. In random exchange the energy is ½ c^2 for the accelerating energy and ½ c^2 for the spin precession energy. Due to the generation of gravity in general, say at infinity the opposite reaction exists spread over the Cartesian volume of the universe. In other words the one component representing ¼ c^2 is overall linear or radial energy while in the three Cartesian directions the medium energy is expressed as 3x (¼ c^2) = ¾ c^2 shown in fig 3

Acceleration one direction to end velocity $½\sqrt{2}$ c (unit mass)
Energy: s a = ¼ c^2 = ½ $(½\ \sqrt{2})^2$
Acc. two directions: ¼ c^2 + ¼ c^2 = ½ c^2
Acc. three directions: (¼ + ¼ + ¼)c^2 = ¾ c^2
Overall energy: (¼ + ¾) c^2 = c^2 dark matter
Rotation energy: $(½\sqrt{3})^2$ c^2 = ¾ c^2
Work by charged matter: ¼ c^2
The $½\sqrt{2}$c vector in radial direction from a gravity

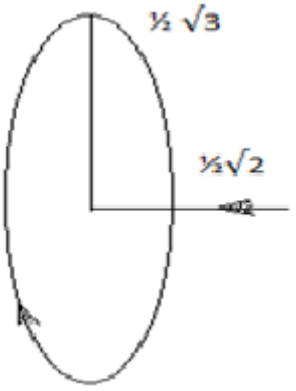


Fig 3

Or in other words it is the coherent radial energy due to gravity anywhere in our cosmos with ½ c_{eff} integrated momentum in spherical symmetry transferring energy to an imaginary centre of mass.

Par 3 The derivation of the baryonic mass ratio in relation to the dark matter medium of ultra light and fast pseudo vectors.

The derivation of the mediating mass for the dm medium between the proton and the electron is subjected to Sacharov's law of dark matter induction, see ref 1.

$m_m^2 = m_{at} /(4\alpha)$ with $\alpha = 1 /137.036$ the fine structure constant
giving for the H atom: $1837.153\ m_e$ $m_m = 250.81\ m_e$ as mediating mass

For the expansion of the medium with an overall intrinsic medium acceleration of a_o spanning Hubble's radius R_H of our cosmos due to Hubble's red shift constant between galaxies. So in fact
$R_H\ a_o = ½\ c^2$ because the initial momentum can exceed $1/2c_{eff}$.
The medium accelerates the mediating mass by a_o while generating the angular momentum and precession generating the rotation energy: $½\ (½\ \sqrt{3})^2\ m_m\ c^2 = 3/8\ m_m\ c^2$.

The force balance under acceleration between m_m and m_{at} (H atom) and the respective number of cells is N_2 and N_1 giving energy:
$½\ N_1\ m_{at}\ c^2 = (½ \text{ x } ¼)\ N_2\ m_m\ c^2 = 1/8\ N_2\ m_m\ c^2$
Resulting:
$N_2 /N_1 = 4 \text{ x } m_{at} /m_m = 4 \text{ x } 7.325 = 29.3$
With $N_1 /(N_1 + N_2) = 1 /(1 + 29.3)\ 0.033$ $N_2 /(N_1 + N_2) = 29.3 /(1 + 29.3) = 0.967$
The last ratio represents the dark medium.

Since the medium constitutes four independent pseudo vector cells to be associated to four kinds of pseudo e-neutrinos, it is indestructible because the uncertainty wavelength is about three hundred thousand times longer than the Compton length of the electron. The fast medium is overall neutral for Fermi spin and the acceleration components then giving a factor two out of the four cells.

It changes the force balance:
$N_1\ m_{at} = 2 \text{ x } 7.325\ N_2\ m_m$ making $N_2 /N_1 = 3.6625 \text{ x } 7.325 = 26.83$
Baron ratio: $1 /(1 + 26.83) = 0.0351$ dm overall ratio: 0.941

Weighted ratio:
baron equilibrium: $N_1\ m_{at} /(N_1\ m_{at} + N_2\ m_m) = 7.325 /(7.325 + 26.83) = 0.214$
rotation dm ratio: $N_2\ m_m\ /(N_1\ m_{at} + N_2\ m_m) = 26.83 /(7.325 + 26.83) = 0.786$
Conclusion:
It shows the first step for comparison to the observed ratios between dark matter as radial or linear acceleration and dark energy as rotation energy explaining the existence of a dark matter medium.

Par 4 Remarks and corrections

Define the substitution angle of θ between m_{at} and m_m as momentum ratio because
$c \cos 60^o = ½\sqrt{3}\ c$ discussed above then $\cos \theta = \sqrt{(2 /7.325)} = 0.5225$ and $\theta = 58^o.5$.
It is interesting to see if the substation angle of the medium changes under the constant acceleration of ao . This motion is called the hyperbolic motion in the special relativity theory.
Above the angle θ is 58°.5 giving a ratio of $c \cos \theta = 0.5225c$. For Helium this value is changed to $\theta = 57°.527$ making $c \cos \theta = 0.5369\ c$.

The hyperbolic motion compared to the Newton path of acceleration gives a kinematical energy ratio of

$$Rhyp = shyp / snewt = 2(\cosh \tau 1 - 1) / \beta^2$$

Where $\tau 1 = (ao / c)\ \tau$ is the normalized time interval of acceleration, but in fact the formula is independent of the constant of acceleration. Here $\tau_1 = m /m_o$. For the maximum energy of the pseudo cells $½\ c_{eff}$ then $m/m_o\ 1 /\sqrt{(1 - \beta^2)} = \sqrt{4/3} = 1.154700$

For β = 0.5225 then Rhyp = 1.266. The kinematical hyperbolic ratio brings the overall free dark energy of the universe up to 0.786 * 1.266 = 0.995, which should give a real ratio of 1.00 at first impression. However for $He^2{}_4$ the ratio of mat / mm = 6.934 with β= 0.5369. See table with R_{hyp} = 1.266 corresponding to m/m_o = 1.154700 and the overall is1.266 x 78.6 = 99.44

β	β²	mat/mm		Nat/Nm %	baron %	DM	Rhyp %	overall
0.480	0.23	8.696	37.81	2.58	81.3	1.214	98.84	
0.500	0.25	8.00	32.0	3.03	80.0	1.238	99.04	
0.5225	0.273	7.325	26.83	3.59	78.6	1.266	99.44	
0.5436	0.2955	6.768	22.90	4.18	77.19 dark-energy	1.296	100.0	

β is the end velocity of the linear part of the graviton with respect to c. The dark matter part (acceleration equilibrium part) plus the dark energy part gives 100 %.
The inertia ratio mat / mm = 2(1/ β²) with Nat/ Nm = 2(1/ β²)² with a baron ratio of 4.18 %.

Relativistic corrections for dark matter and dark energy compared to not recent observations.
The available data for the dark matter and energy in our cosmos are given in the table. The latest observation with highest accuracy come from the COBE- satellite dedicated to the cosmic background observation and extracted from the Planck map of the universe.

		m_m/m_{at}	N_{at}/N_m	F_D	F_E
	$^1H_1$	7.325	1 /26.83	0.2145	0.7482
2006	WMAP	6.5146	1 /21.22	0.227	0.728
2013	COBE	6.2303	1 /19.41	0.268	0.683

The ratio m_{at}/m_m is the equivalent for the observed data and N_{at} / N_m are respectively the number of atoms and quanta of the mediating mass. Note: $^4H_2$ converted to one atom gives only a small deviation from the neutral hydrogen. Therefore the relativistic correction is the main reason to explain the deviation of the observed data.

$^1H_1$	1837.153	m_m	250.8082	ratio	7.325	expressed in m_e .
^4H_e	1825.063		249.9472		7.302	

As explained in the theory of CDM based on the neutrino hypothesis, dark matter follows vector driven empty space, weak vacuum due to coherent neutrinos. The derived formula represents Newtonian labour under conservation of angular momentum.

$$v^2 / c^2 = \cos^2\varphi = 2m_m / m_{at}$$

The factor 2 is important and it is the conserved vector ensemble of both electron and atom converted to one atom representation determining the quantum exchange of the dm medium by the mediating mass m_m . The mediating mass is due to gravitational induction, but the vector quanta of vacuum are partially or fully accelerated up to around ½c . The overall energy in the universe induces the vacuum acceleration constant determined by the induction law of gravitation. So one may conclude that solely m_m is subjected to relativistic behaviour and not m_{at} .

Calculate from COBE data the ratio m_{at}/m_m: $m_{rel}/m_m = 1/\sqrt{(1-\beta^2)}$
$\sqrt{(19.41/2)} = 3.1151 \times 2 = 6.2303$ $m_{rel} = 1837.153/6.2303 = 294.875$
$m_{rel}/m_m = 1.1757$ $\beta^2 = 0.27655$ $\beta = 0.5259$

The hyperbolic motion for constant acceleration of a_o gives the relativistic energy ratio with respect to the Newtonian labour.

$R_{hyp} = 2(\cosh \tau_1 - 1)/\beta^2$ with $\tau_1 = (m/m_o)$ or: m_m or: m_{rel}

The table of interpolation is:

R_{hyp}	β	β^2
1.238	0.5	0.25
1.266	0.5225	0.273
1.296	0.5436	0.2955

For equal β of 0.5259 is the ratio of 1.1757 smaller than R_{hyp} of 1.268 giving m_{hyp} = 318.025.
Only 1.1757 is allowed while m_{hyp} cannot be a hyperbolic motion.

References:

Website: https://gravitation-levitation-physics.org/

Website: https://universal-creation.org/
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