

The new gravitational variable

The impact on the cosmos ´analysis

A new insight on the Universe

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After the development of the new theory on the universal gravitation, where the universal gravitation constant is substituted by an variable, became imperious to analyze which the impact that this new theory would have on the vision of the universe. As such the work elaborated for the present effect.

This work was changed because the new Doppler

Redrafted in March 2009

1-Intro

Looking to unveil the Universe

After all the work developed in to my article “A new gravitational variable. A new insight of the Universe” I believe that the founding pillars of this new universe’s conception are now defined. Here is a short summary:

- The speed of light is the limit velocity of the universe and as the local gravitational potential created by

all universal is $\frac{c^2}{2}$.

- The gravitational variable is given by:

$$G = \frac{C^2 R_{eu}}{2 M_{ur}}$$

And the value of the gravitational permeability variable of vacuum is:

$$G_k = \frac{2 \pi R_{eu}}{M_{ur}} .$$

Being:

M_{ur} : All universal mass affected by the Doppler Effect between the movements of each mass in relation to the local movement.

$$M_{ur} = \sum M_j ed_{ji}$$

Reu: Average radius of emission =

$$R_{eu} = \frac{\sum M_j ed_{ji}}{\sum \frac{M_j ed_{ji}}{R_{eji}}}$$

R_{eji} : Radius of emission of each universal mass in relation to the local.

We talk in average radius of emission because we have to consider the universal mass positioning in regard of its radial velocity, in ways that the mass radiation of all universal masses comes simultaneously to the site.

We no longer need any repulsive strength that explains the expansion of the universe, because we now have a universe potentially stable in which its stable expansion is due solely to the increase of gravity. I discard the idea of the existence of the so called “Dark energy”, need to the expansion of the universe.

Although we have to analyze the founding pillars of the universe, there are still incognitos on which we will have to think.

In any way the mass is distributed in the universe.

As the characteristics we know are related to the local Earth

We therefore need to know which the Earth’s position on the Universal Radius is.

Nature of universal fabric.

Let us now think in the matter radiation nature.

Relatively to the action of the local gravity over radiation, we have seen that it doesn’t do any action over raw universal radiation. Look at the back holes, which despite not letting their own light get out, it still continues to create a gravitational field in any distance.

Admitting that the universe’s growth happens at the speed of light, cause as we seen before local mass does not bend the universal mass raw radiation. The universe grows at the speed of light. Gravity propels at the speed of light.

The universal fabric in no more any less than the gravitational potential created by the masses of this universe.

The calculation given the universal mass gravitation over the light radiation of the stars has to be done, when studying the light coming from the stars, because this radiation suffers that influence.

In relation to subdue of this radiation to the Doppler effect, I believe that it is subdue to that effect because recent experiences shown us that gravity travels at the speed of light, fundamental characteristic for the consideration of such effect.

Considering that the stars process and releases radiation, this one by having weight radiates the raw mass radiation, having that capability it will have the same center of radiation that the matter that created it.

Given its low value it would be useless to the present scale.

Speculation

2- Matter distribution in the Universe.

In relation to the energy distribution, condensed in the shape of matter, or not, how would it distributed itself by the universe?

Let us now try to perceive from the own universe model that information. As a model I will consider a symmetrical Universe, in which the matter distributes itself according to the Minkowski's space.

Let us picture an energy wave creator of matter that besides sweeping the universe, also gives origin to it.

That energy wave will be present in each site, the amount of time that site took to create.

The energy generated in each site R will then be given by:

$$E = k_1 4 \pi R^2 t'$$

Being to its intrinsic time:

$$t = \frac{R}{C}$$

$$E = k_1 4 \pi R^2 \frac{R}{C}$$

Considering the relativistic energy and Doppler effect.

$$E = k_1 4 \pi R^3 \sqrt{\frac{C-V}{C+V}} \frac{1}{C}$$

$$\sqrt{\frac{C-V}{C+V}} \text{ Doppler effect}$$

The total energy (Et) contained in the universe will have to be obtained by the integral E, between R = 0 and R.

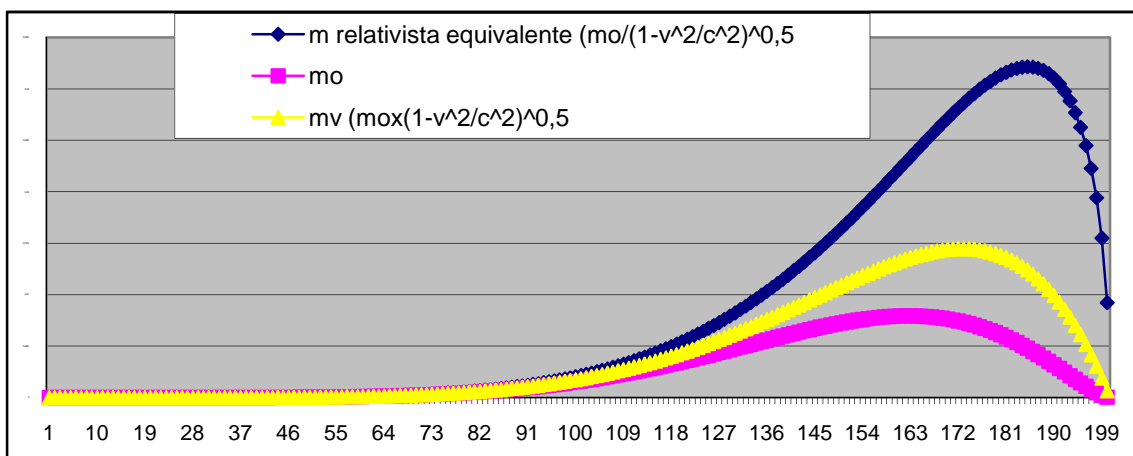
$$E_t = \int_0^R k_1 4 \pi \times R^3 \sqrt{\frac{c-v}{c+v}} \frac{1}{c}$$

The relativistic Universal matter will then be given by:

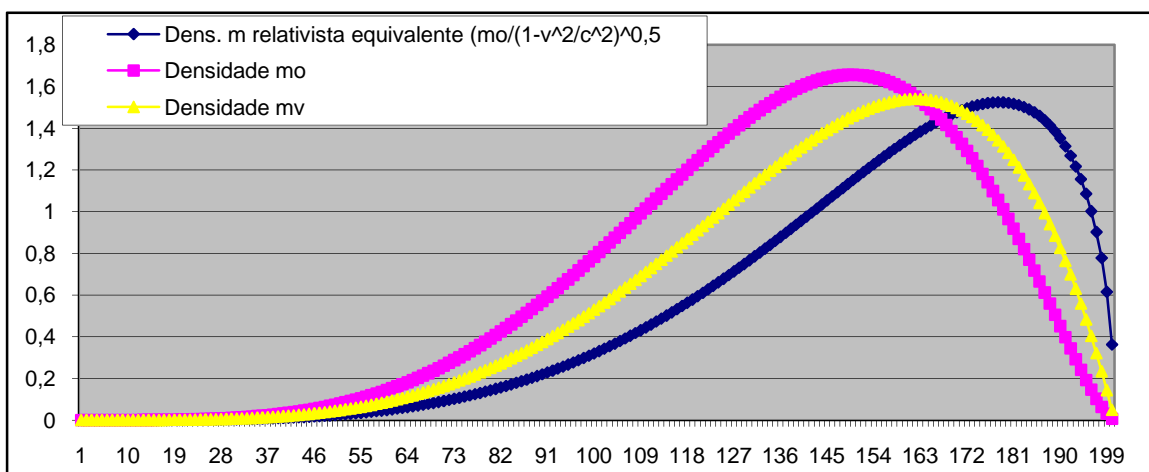
$$M_u = \frac{E_t}{c^2}$$

Until technology gives us a more concrete answer this is one more speculation.

This criterion will lead to a mass distribution of relativistic mass in the universe close to the chart below:



With a density:



Regarding to the non relativistic mass we will have, for the amount of mass:

These distributions are approximately, because we haven't had yet in consideration the relativism matching the translation velocities of matter. Only ahead when we study the universal model we shall have a more accurate distribution.

In the annex board 5, it is studied the hypothesis of a homogeny distribution of matter in the Universe.

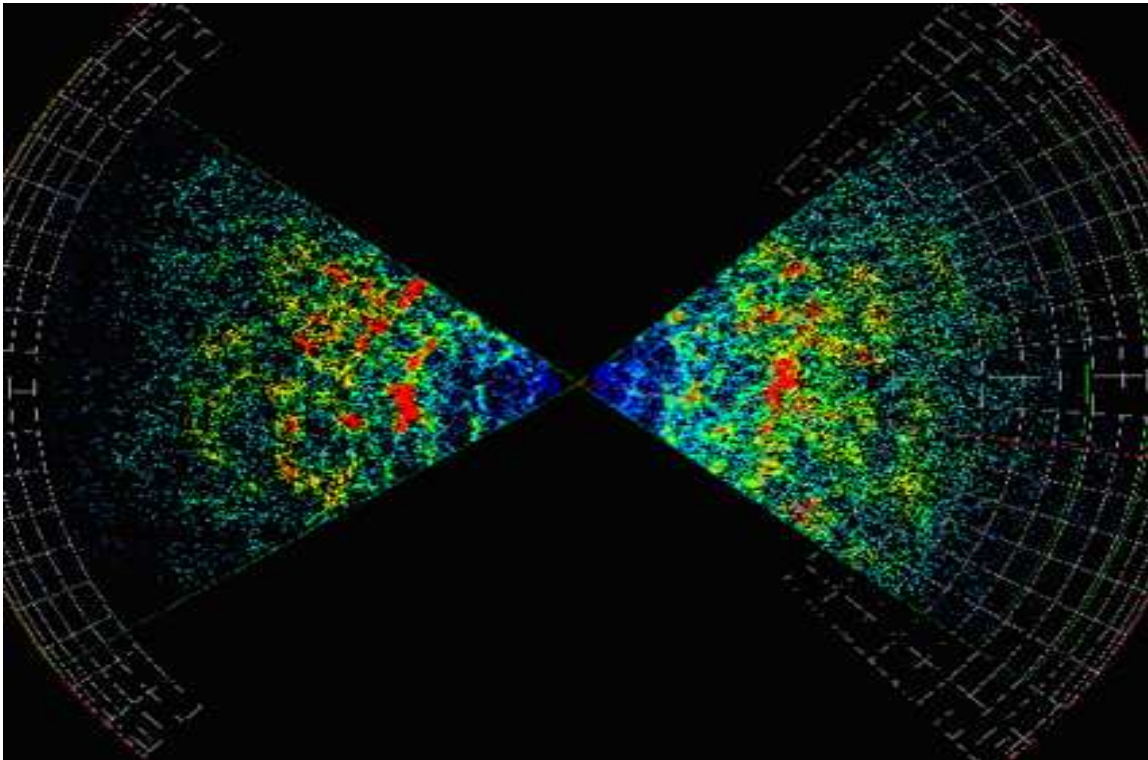
3- The Earth in the Universe.

In order to elaborate any universal mass quantification we will have to define which is the position of the local earth in the Universe, because given the known data referred to the gravitational variable value and the correlation coefficient of the Universe, that are mint for this place.

Several studies have been made until nowadays about the absolute velocity of the earth in the universe. Those studies point to a velocity of 208 Km/s (Miller, Jaseca, Javan, Murray e Townes), after corrections to the experience (according Franco Selleri), beyond these there were others that pointed to an absolute velocity of the earth around 640 Km/s.

It is my opinion that a serious study of the Earth's location in the universe, will have to deal with a close study of the tracings done by the special telescopes given the fact that it is known that the energy radiation is radial, therefore the same type of events will take place at the same distance to the center of the universe.

It was one of those images, taken by the space telescope 2dF Galaxy Redshiiht Survey, that i approached in the sense of trying to place the earth n the universe.

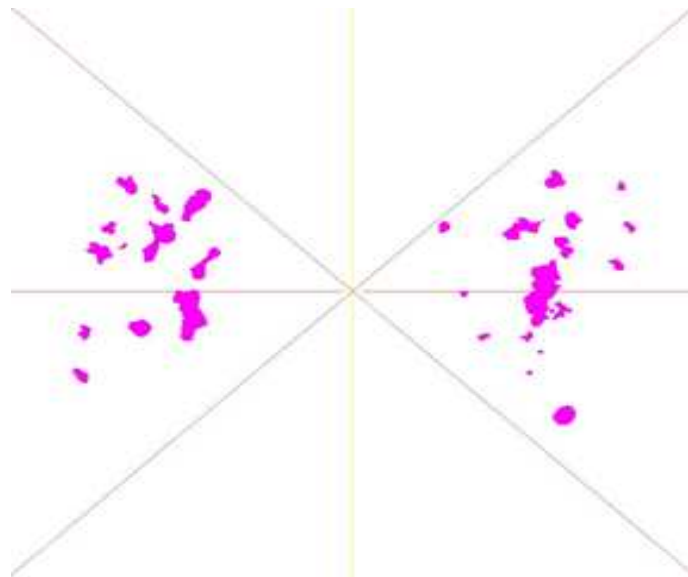


Given its disposition of the similar masses/events there pictured, it shows a quiet central positioning of the earth, despite there is an eccentricity towards the left of the I picture, which I believe is the result of a greater proximity to the masses and a smaller Doppler effect.

Considering the collared stains, related with the local conditions, in which it would be expected a symmetry in relation to the center of the Universe, it was shown that it didn't happen and therefore calculated from those each of those collared areas which would it eccentricity be.

It was also considered the light emission time.

As an example, it was calculated that beyond the orange stains, in the left side of the picture, that the average point was situated 0,206185 of the center of the picture and that on the right side the average point was situated 0,240409 of the center of the picture. Those points were considered in relation to the radius of the picture and considering the image time.



Orange zones:

We conclude therefore that there is an eccentricity of 0.017 of the picture radius.

It was that value that we considered for the location of the earth in the universe.

Acknowledging that the present study lacks of better closeness and more elaborate studies, its use is also a suggestion in order to approach in the future the earth's location throughout this process.

Anyway, I consider the value reasonable enough for the present study.

Therefore, and for now we will have an Earth with a radial velocity in the order of **0.017 C**, i. e. **5.096.472 m/s**, distancing from the center of the universe about **258.355.263** earth light years.

In the annex chart 6 I will show a vision over the impact in the quantification of the universal values regarding different positions of the earth in the universe. (5.19%, 9.11%, of the universe's radius).

Theory application.

4- Construction of the mathematical Universal model.

Automatic calculation.

The purpose is to manage calculate which is the relativistic radiation of matter and non relativistic of the energy, current and simultaneously, in all points of the universe.

Considering the chosen model, i.e. the distributed matter according with the said principles, and that the radial velocity will be proportional to the radius of the site it occupies, it is possible to determine which is its position, in such way that its radiation comes at the same time, with all other masses' radiations, in relation to any given point in the universe in the present time.

The radius of the universe is also divided in a number of parts, in which we want to calculate the radiation value.

Defining the number of angles and the number of parts in which we divide the radius of matter, we then define the number of intervening masses.

In the present reformulated study were considered 100 (2*100) parts of the angle, i.e. 3.6 degrees and 100 slices of matter, which total 10.000 masses. Each slice was then divided in 1.000 parts for the calculation of its value and mass center, so we the talk about 10.000.000 assessed points, value which I think was reasonable for the presented calculation. The radius of the universe was sub divided in 200 parts.

This division could also be infinite, depending solely on the computer capability and the operator's patience.

The radial velocity shall respect the proportion $\frac{R_{local}}{R_u} \cdot C$.

It was considered the earth's age of the universe of 15.197.368.421 light years.

For which from the shifting speed of the local earth, we can, based on relativity, determine the absolute age of the universe, and therefore its radius.

The local gravity (Earth) takes the value of 6.6726E-11.

As the Earth's surface, where G know, we have:

$$Rad_o = Rad_l$$

$$G_v = 6.6726E-11$$

$$V = 463.8 \text{ m/s}$$

Taking into account the impact of speed:

$$G_o = 6,67259999998E-11$$

$$Rad_o = \frac{c^2}{2 G_o}$$

$$Rad_o = 6,734670002E+26 \text{ Kg/m}$$

We know then that this is the pure potential of mass throughout the universe, including the pure potential of the Sun, the Moon and the Earth itself in this area:

$$Rad_{Sol-Terra} = \frac{1.9891E+30}{1.496E+11} = 1,329612299E+19$$

$$Rad_{Terra-Terra} = \frac{5.98E+24}{6.378.000} = 9,375979931E+17$$

$$Rad_{Lua-Terra} = \frac{7.36E+22}{385.000.000} = 1,911688312E+14$$

The potential to find in the local solar system will be the difference:

$$Rad_U = 6,734670002E+26 - 1,329612299E+19 - 9,375979931E+17 - 1,911688312E+14$$

$$Rad_U = 6,734669860E+26$$

5- Results – Cosmological implication.

They are now shown the found values based on the premises previously mentioned.

Universal chart:

Universal chart		
Situation:	Relativistic	Not relativistic mo
Universal mass	9,1205232E+52	7,7584367E+52
Total energy of mass	8,1971175E+69	
Radius of the Universe(m)	1,4377821E+26	
Radius of the Universe (al)	15.197.368.421	
Central Go.	6,67291413E-11	
Max. escape velocity of the universe.(light)	193.692.774,8	36,5% of radius of the Universe
Max. translation velocity of matter	136.935.851,6	36,5% of radius of the Universe
Radial velocity of matter	103.447.616,7	36,5% of radius of the Universe
Total velocity of matter	171.618.288,2	36,5% of radius of the Universe
Escape velocity of system Sun-Earth	43.575.086,0	Local Earth
Translation velocity of Sun-Earth	30.812.238,8	Local Earth
Radial velocity of matter Sun-Earth	5.096.471,8	Local Earth
Total velocity of Sun-Earth	31.230.883,5	Local Earth
Solar mass	1,989100E+30	1,978258E+30
Nº of universal solar masses	4,585251E+22	3,921852E+22
Nº of universal solar masses	45.852.512.408.901.000.000.000	39.218.520.001.199.000.000.000
Volume of Universe	1,2449985E+79	1,2449985E+79
Mass's average density	7,3257306E-27	6,2316838E-27
Mass energy density	6,5840383E-10	0,0000000E+00
Mass emission radius – central	5,2542013E+25	4,6333054E+25
Mass emission radius mat / Ru - central	36,544%	32,225%
Doppler - central	3,879563E-01	4,5237931E-01
The escape velocity only serves to show if the light carried along the universe		

$mv = 7,8325E+52 \text{ kg}$ – at your proper local.

In the annex chart 5, we analyze the obtained values for a distribution of the matter in the Universe, considering an energy density constant in all universe.

Commentary to the results

Limit velocities of the Universe.

Translation Velocity of matter:

As shown the translation velocity of matter varies since the value 0 in the center of the universe and the value 0 at its end, because if the radiation doesn't reach that location, then the potential has to be null.

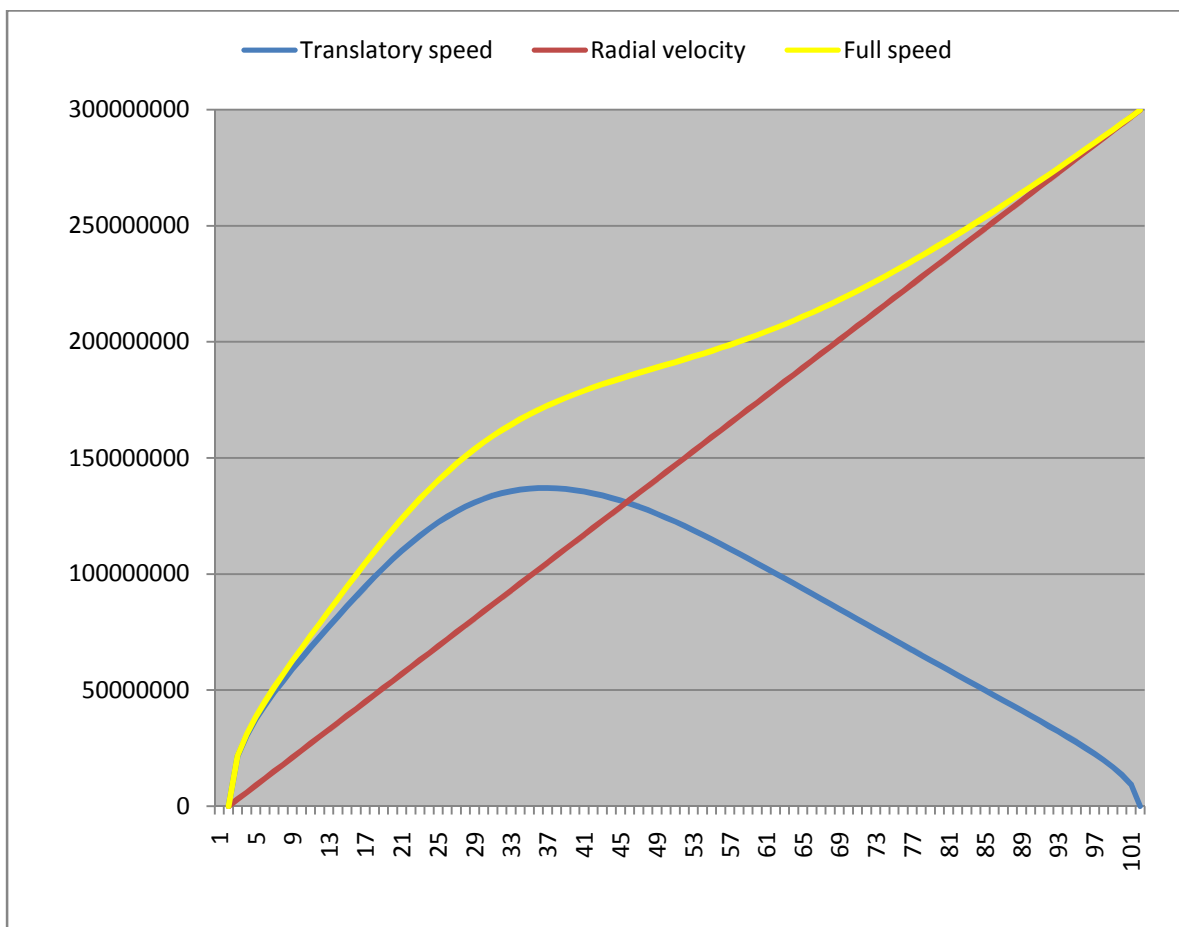
Radial velocity of matter:

The radial velocity is proportional to the radius of the universe, varying from the speed 0, at the center of the universe, until the velocity C at its end.

Total velocity of matter shifting:

It is not more than the vector sum of the translation velocity and the radial one.

Chart:



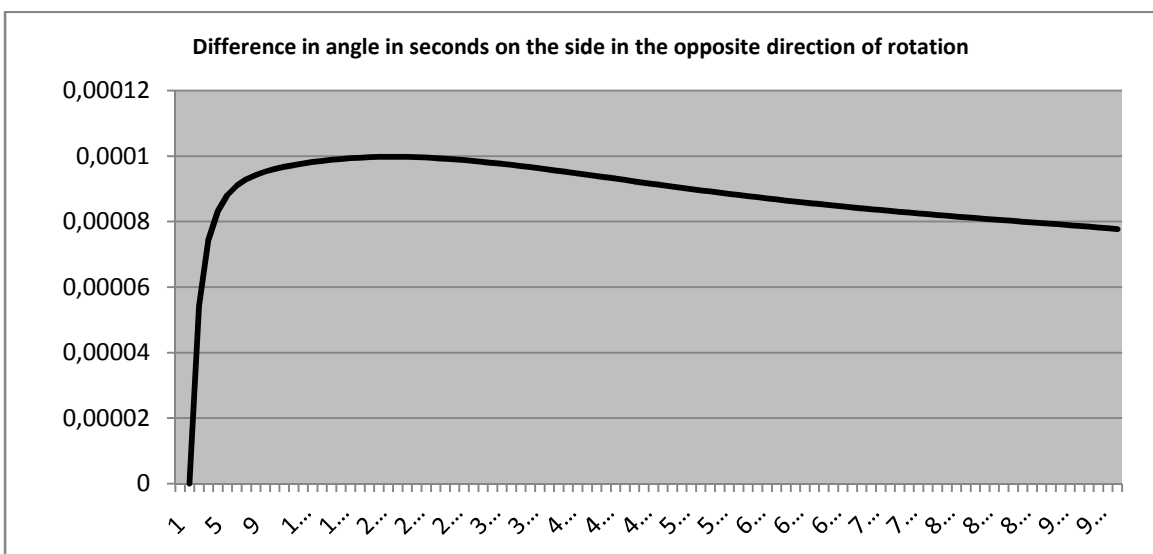
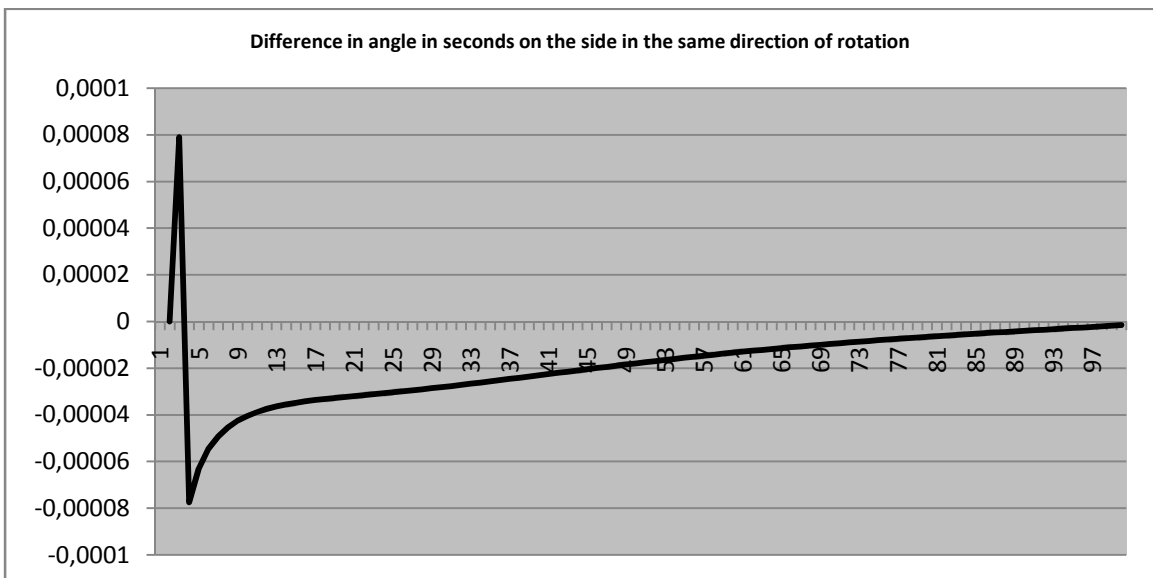
Apparent translation velocity of the stars.

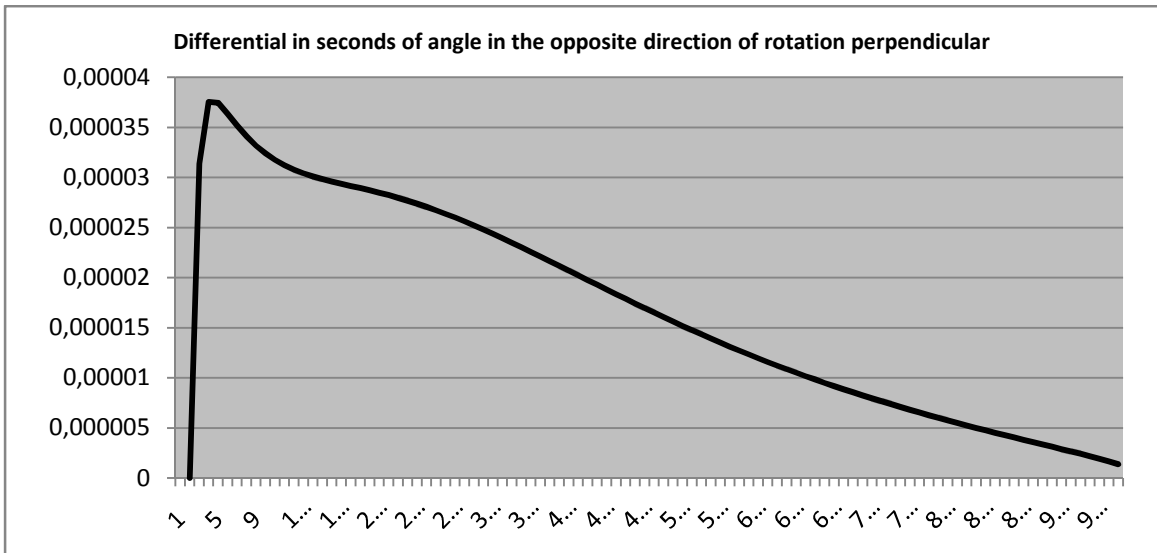
Studying the apparent velocity of the stars it's not a simple task because even knowing its translation velocity we don't know its direction.

In order to have a reference among the values that vary the declination of the stars, let's consider that the local earth and star are situated on the same level and that either the stars rotate in the same direction of the earth or in the opposite direction.

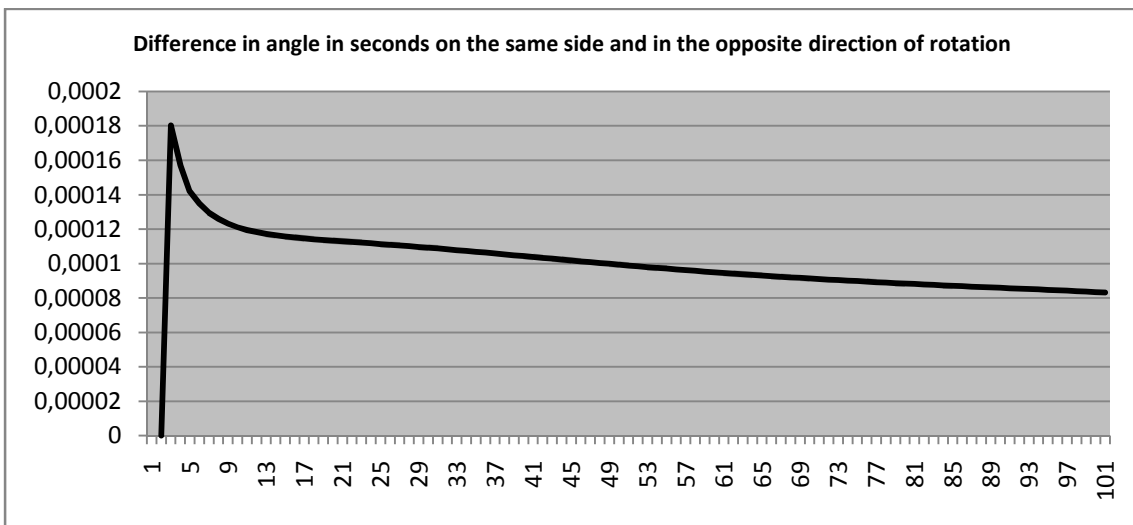
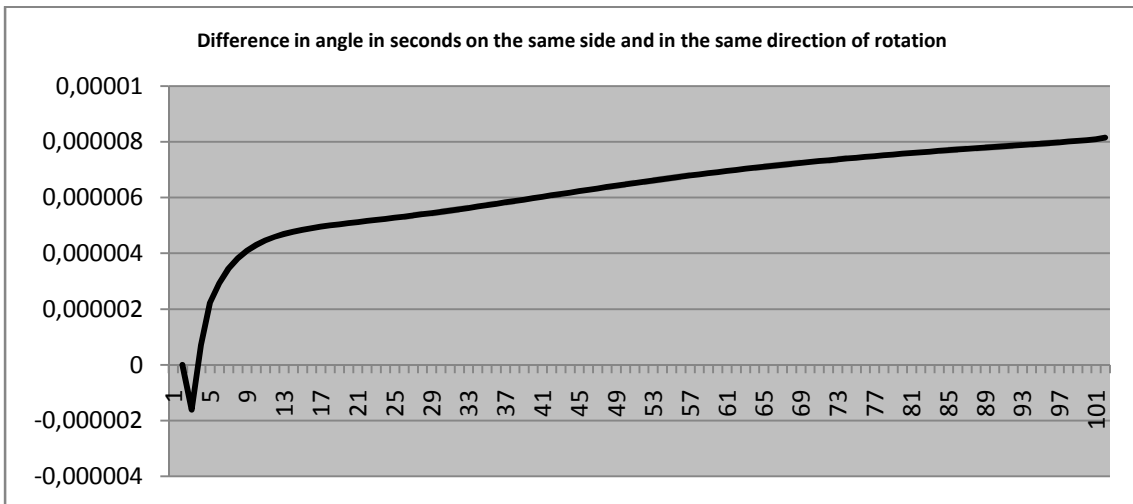
Let us study the behavior of the stars which are located in the same Universal radius of the earth, in order to go around the curvature that universal masses cause in the radiation of light.

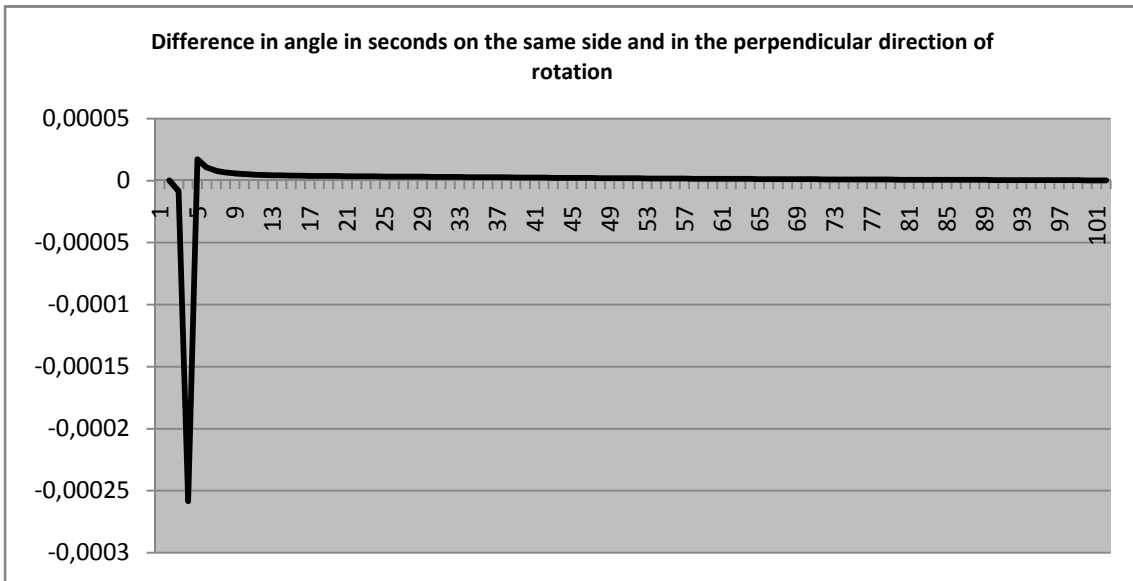
There being we will have in seconds per year:



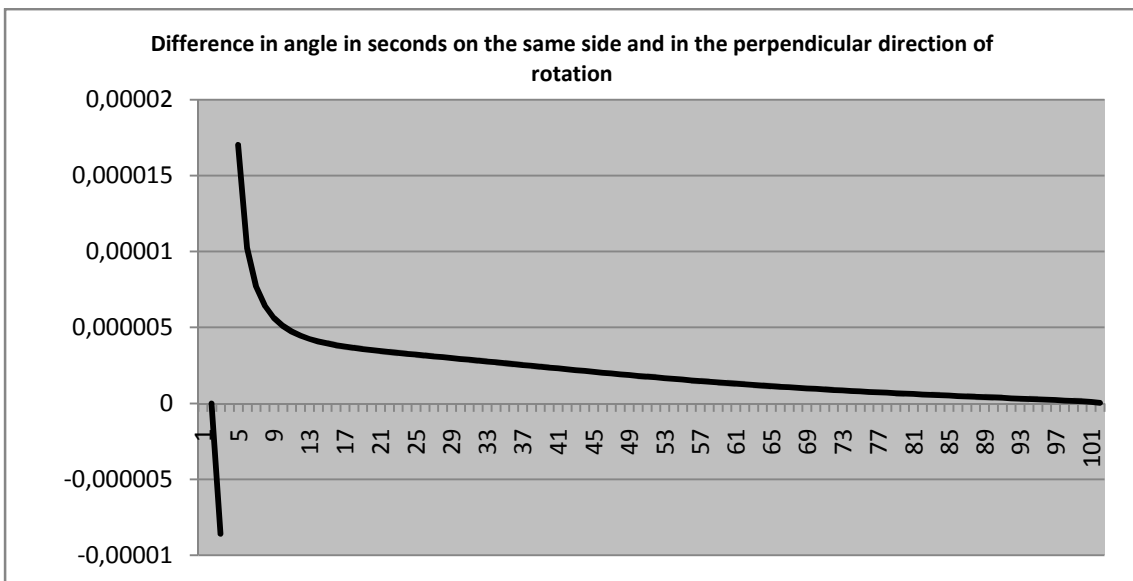


Located in the opposite Universal radius:





If you remove the image of the nearest star



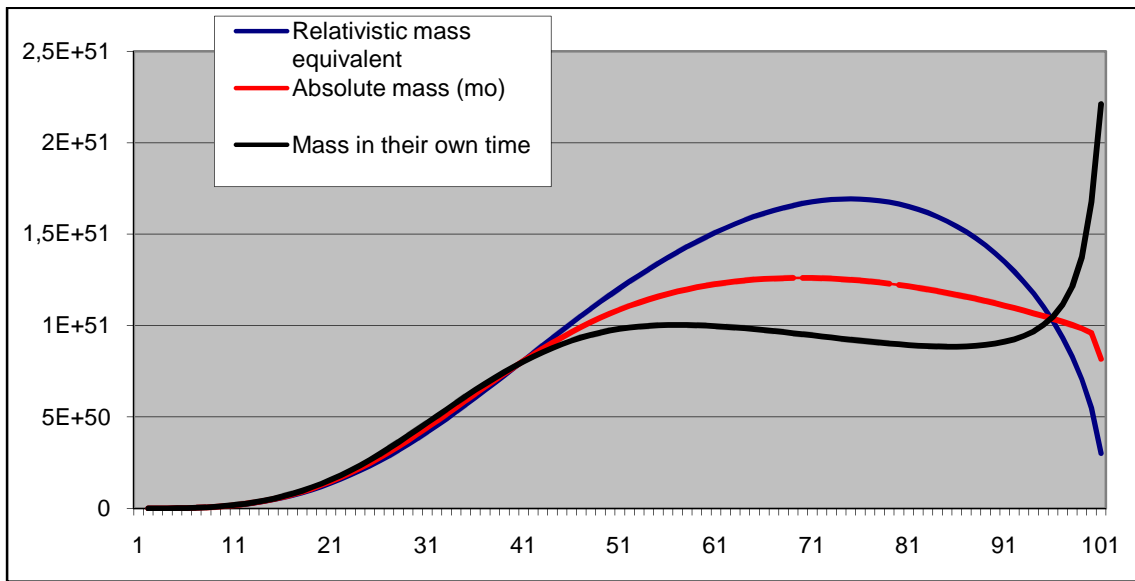
The amount of mass in the universe and its distribution along the universal radius.

The chart shows the amount of solar masses existing in the universe.

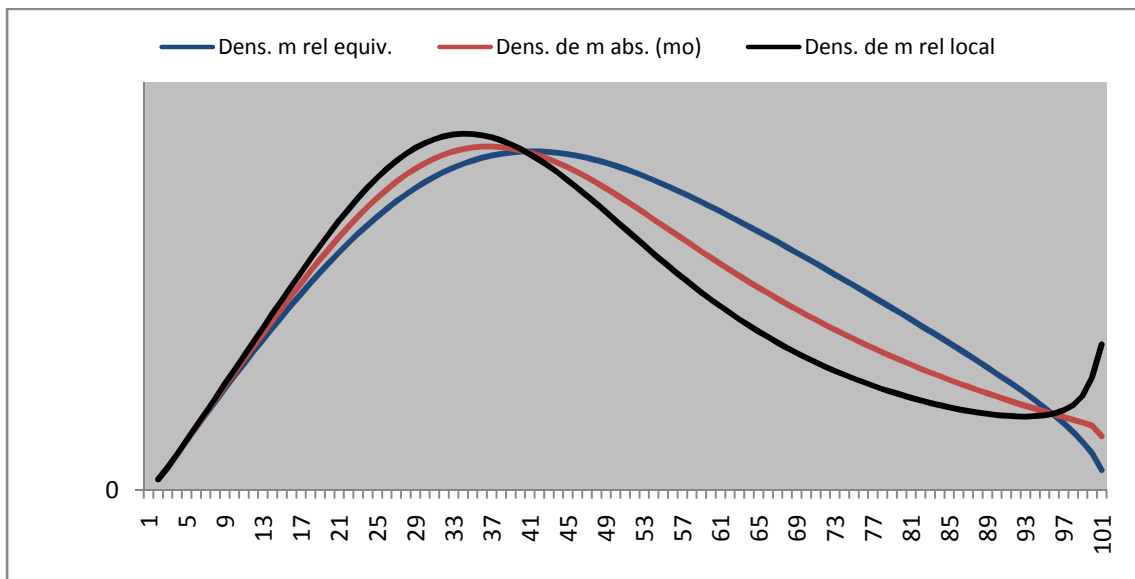
	Quantitated(kg)	Solar masses	
M. absolute	7,7584367E+52	3,921852E+22	39.218.520.001.199.000.000.000
M. relativist equivalent	9,1205232E+52	4,585251E+22	45.852.512.408.901.000.000.000

$mv = 7,8325E+52 \text{ kg}$

Distribution in the perspective of the relativistic and non relativistic mass along the radius of the Universe:



Density: Max= 6,1242E-26



The value of the gravity will increase along the radius of the universe.

The value of the gravity will increase along the radius of the universe. In the Universe limit its value will tend to + infinite. On the presented chart, given the fact that we've worked with slices of the Universe, the obtained value for gravity matches the value at the center of mass of each slice.

The development of the curve of the gravitational variable value along the radius of the universe is regardless of the earth's location on the universe. The development of the curve relies only on the type of distribution of the mass in the universe:.

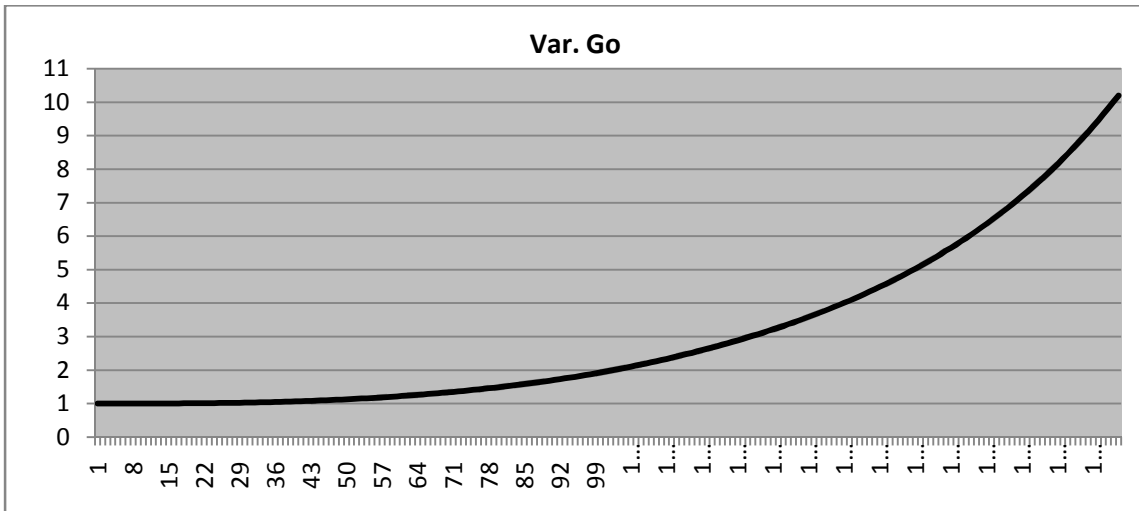
As seen in the study of the curvature of the time under the action of a gravitational field, derived from the study analysis of the law of universal gravitation, we see that the value of the variable value of gravitational radiation depends on the pure Universal spot and the speed of displacement of local .

Impact of radiation Universal pure mass in the value of the local variable

gravitational:

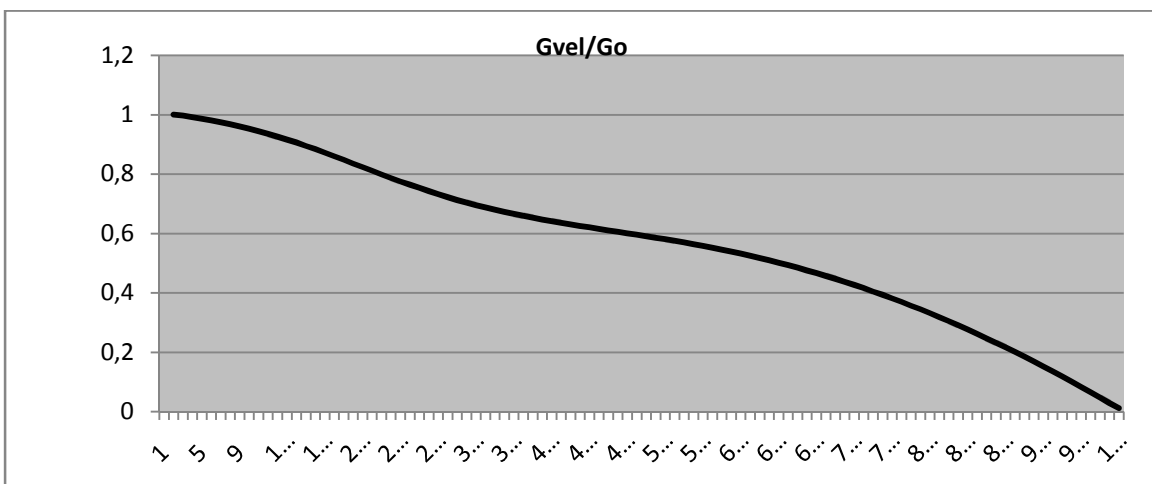
Where: $G_{lr} = G_{or} \frac{Rad_o}{Rad_l}$

Value of the gravitation along the Universe at the present time:



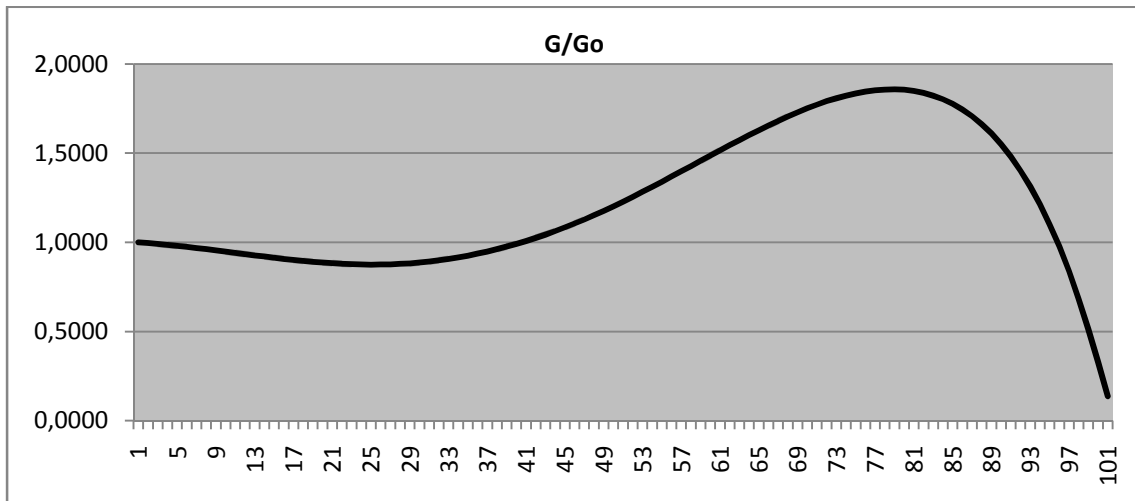
Impact of speed on the local value of the local variable gravitational:

Where: $G_{lr} = G_{or} \frac{c^2 - v^2}{c^2}$



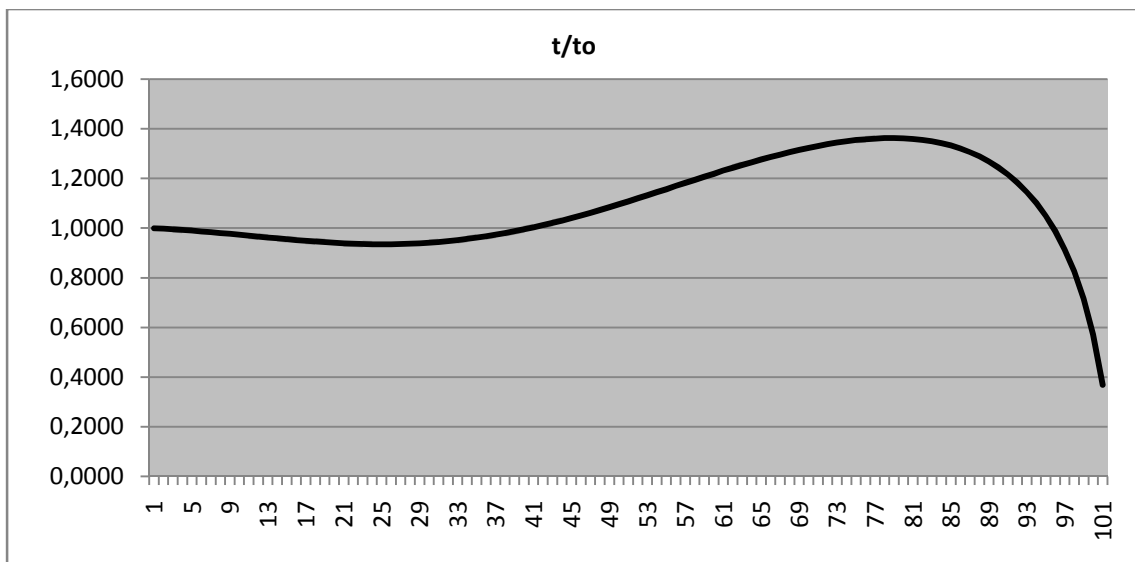
Overall impact on the local value of variable gravitational:

$$\text{Sendo : } G_{lr} = G_{or} \frac{Rad_o}{Rad_l} \frac{C^2 - V^2}{C^2}$$



Impact of the variable gravitational place at local time:

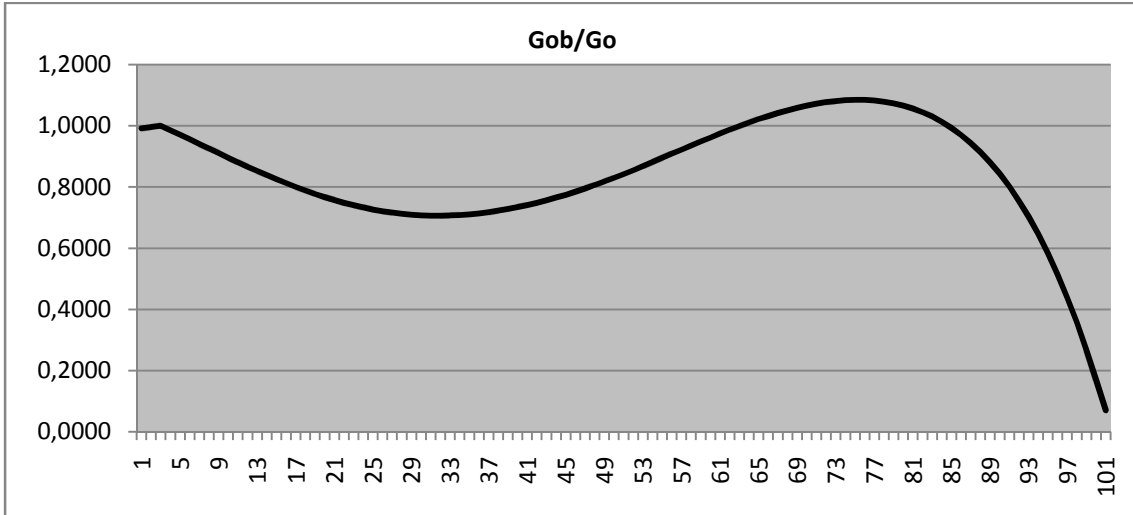
$$t_l = t_o \sqrt{\frac{G_{lr}}{G_{or}}}$$



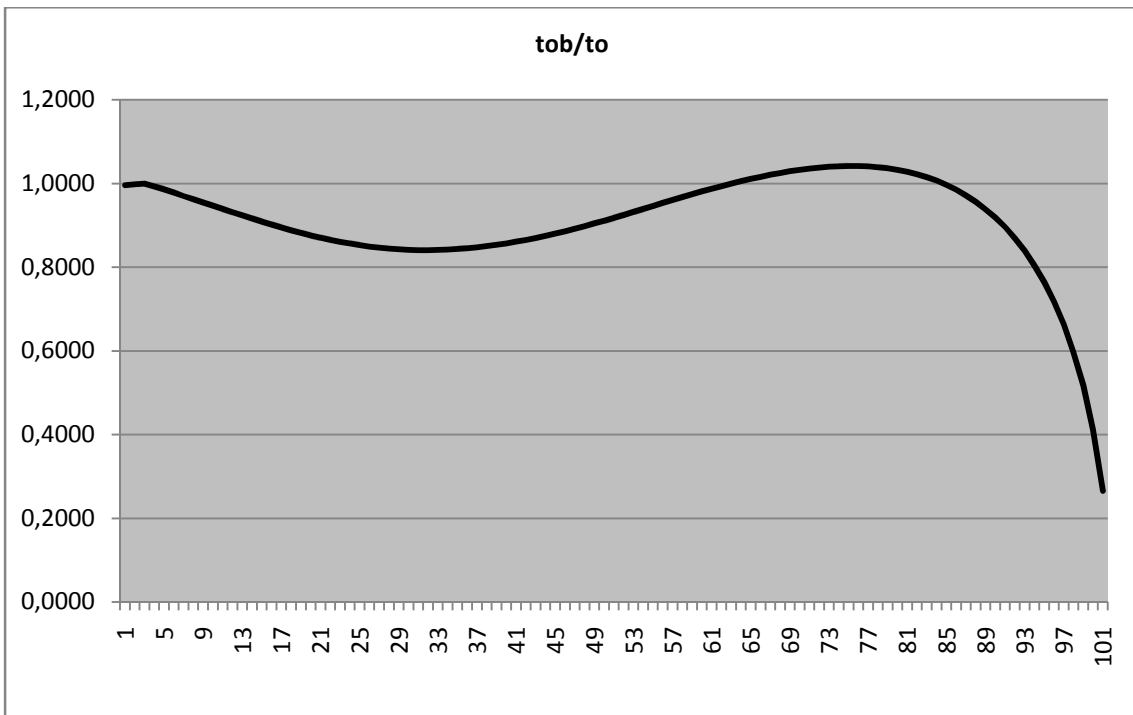
Variable value of gravitational and local time today for the observed universe.

Gravitation which is seen in nowadays. Introducing the differential in the picture, due we are always looking at the past we will have:

Global impact.

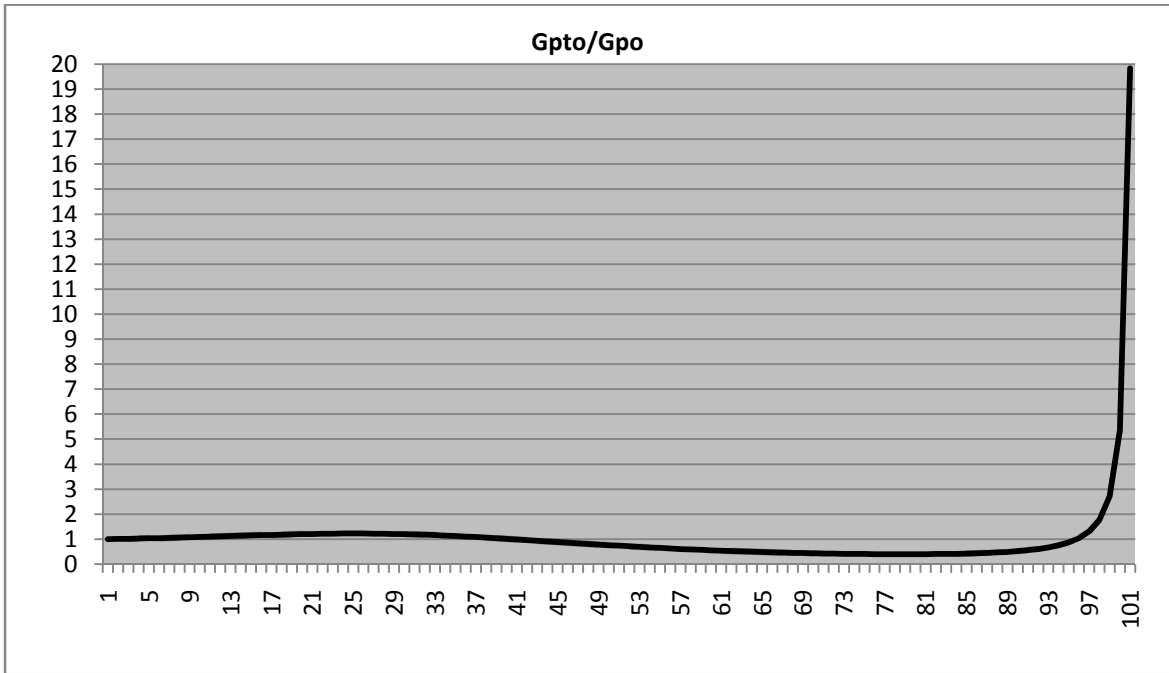


On the local time observed:

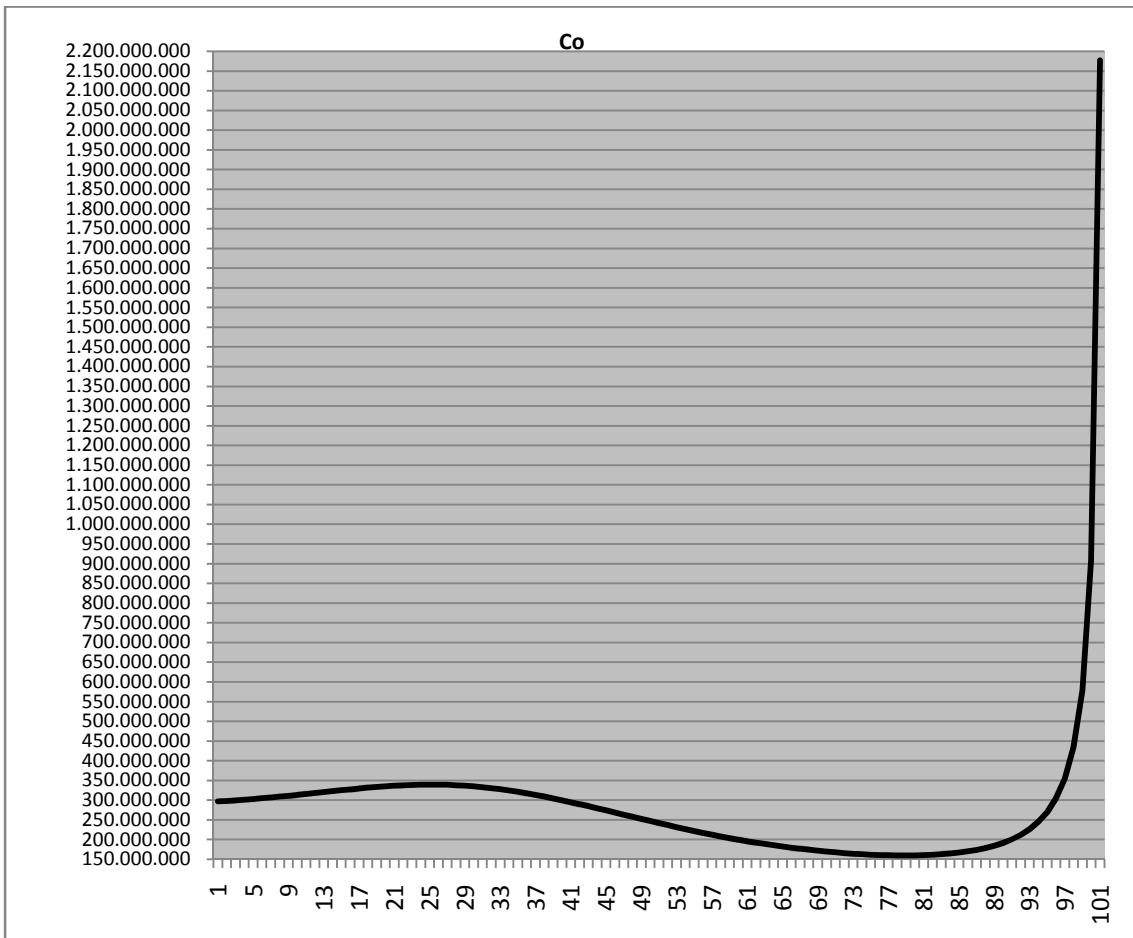


For the vision we have at the time of referential.

The value of variable gravitational, for the value read by us, in every reference we have:



The value of the speed of light in the referential:



As we can see from the explanation given about the mass potential, then the value of gravity o each site, will grow in proportion to the growth of the universe's radius, therefore in proportion with time.

The value of variable gravitational, varies along the radius of the universe, so to meet the most serious phenomena in distant points of the universe, or due to the change in the value of variable gravitational, because as we have seen the radius of the matter does not depend on this speed but only the pure mass potential universal place. The radius of the field will therefore be inversely proportional to the evolution of the change of variable gravitational potential due to pure mass universal along the radius of the universe.

Hypothetical acceleration of the Universe's expansion.

Some authors postulate that the universe is expanding rapidly.

As we have seen in the article entitled, "The apparent acceleration of expansion of the universe," that this concept is the result of considering the speed of light constant, which is a mistake, because time dilates with increasing gravitational variable location.

See "The curvature of time under the action of a gravitational field."

6- Kinetic characteristics on local Earth

There being we have an Earth with a Universal radial velocity around 0.017C, i.e. 5.096.472m/s, apart from the center of the Universe around 258.355.263 earth light years, with a translation velocity around 30.812.238,8 m/s which gives it a total velocity of 31.230.883,5 m/s, which stands for a velocity 1.049 times greater than the translation velocity of the earth around the sun.

Given that the Sol system / Earth revolves around the Milky Way at a speed of 225,000 m / s, and this revolves around the Local Group, which in turn revolves around the Virgin and that it finally turns in the universe, then we have:

Vel. de transl. de -- em torno de --	m/s
Hearth/Sun	29.785,9
Sun / Milky Way	225.000,0
Milky Way/ Local Group ???	1.164.974,5
Local Group / Virgin???	6.031.847,5
Virgin / Universe	31.230.883,5

7-The Radius of the Universe.

As seen previously the radius of the universe, is given by the ratio between the distance from the earth to the moon (annual separation) multiplied by the escape velocity of the Universe.

The correlation coefficient shall be modified to:

$$R_u = 15.197.368.421 \times 365.25 \times 24 \times 3600 \times C = 1,43778E+26 \text{ m}$$

8- The age of the Universe

As was already stated the age of the universe will be equal to the correlation factor, i.e. 15.197.368.421 earth years, therefore 15.197.359.345 absolute years for the time of matter created.

The age of the universe will be made by two distinctive periods, the creation of matter and its evolution.

For the creation time, considering the previously proposed matter calculation I calculated for the initial radius of the universe the value of 8,5868251E+19 m.

By other words, the matter creation time was 9.076 years.

Initial Temperature of the universe?

Considering that the bottom radiation, matches the actual temperature of the universe, then the initial temperature of the universe would be given by:

$$T_o = 2.725 \text{ K} \times 1,43778E+26^3 / 8.5868251E+19^3 = 3,7903E+18 \text{ K}$$

I confess that it is little uncomfortable to consider that bottom radiation as proof of a constant temperature in the universe. I do not know which is the method do measurement and calculation. I think that it is a proof of the central position of the earth in the universe and that it is the temperature of space on local earth.

To think in a universe at the same temperature is tricky, because at its limit radiation will have increasingly more difficulties to reach and with the action of gravity there will be a decrease of frequency in the outside direction and an increase towards the center.

I am convinced that it will be plus a test of the great homogeneity of the space, more than what any another characteristic.

Initial density of the Universe

After the beginning of the universe's expansion the existing mass would be in the order of $9,1205232E+52$ kg of mass.

The volume of the universe, around the end of the matter creation process, would be according to our speculations around $2,6520852E+60$ m³.

The average density would be around $3,4390008E-08$ kg/m³.

Discussion

9-Other considerations:

- Around 5.232.000.000 years, Mars was at the same distance of the Sun that the Earth is today.
- Venus will occupy the earth's present location in about 5.905.000.000 years.

Correction to the values of the removal between celestial bodys.

- The earth is moved away 9.48 m/year. (Real distance).
- The Sun for being the 30,000 year-light of the center of the Way Lacteal, will have to be to move away itself from this center, 18.675.728 km every year, that is to move away a speed to it from 592 m/s. (Real distance).
- The proper Way Lacteal that has a diameter of 99.000 year-light, will have to be to grow to the return of 61.629.900 km per year, then to grow to a speed of 1.953 m/s. (Real distance).
- The proper Universal masses will be to the same move away from the center of the Universe annual value. (Law of Hubble – $63.67 \text{ km/seg.} \times \text{Mpc}$). (Real velocity).

These issues will be dealt in a more exhaustive manner in my next article "The new magnetic permeability of vacuum. The dimension of matter. A new vision of the Universe."

Annex

Chart 5

- Comparison of the results between the proposed solution for mass distribution and the proposed constant density

Chart 6

- Impact caused on the universal values resulting from other locations of the earth in the universe.

A special thanks to the “layout Engenharia”, especially to my good friend Eng. Fernando Jorge Almeida, and his collaborator Mr. Joaquim Rocha, for their help in remembering me the informatics language, without it I couldn't be able to carry out the fulfillment, numerical, of this project.

To my wife and daughter, your love, my light.

José Luís Pereira Rebelo Fernandes

Oporto, since late 2005 to 21 of November 2008

Chart 5:

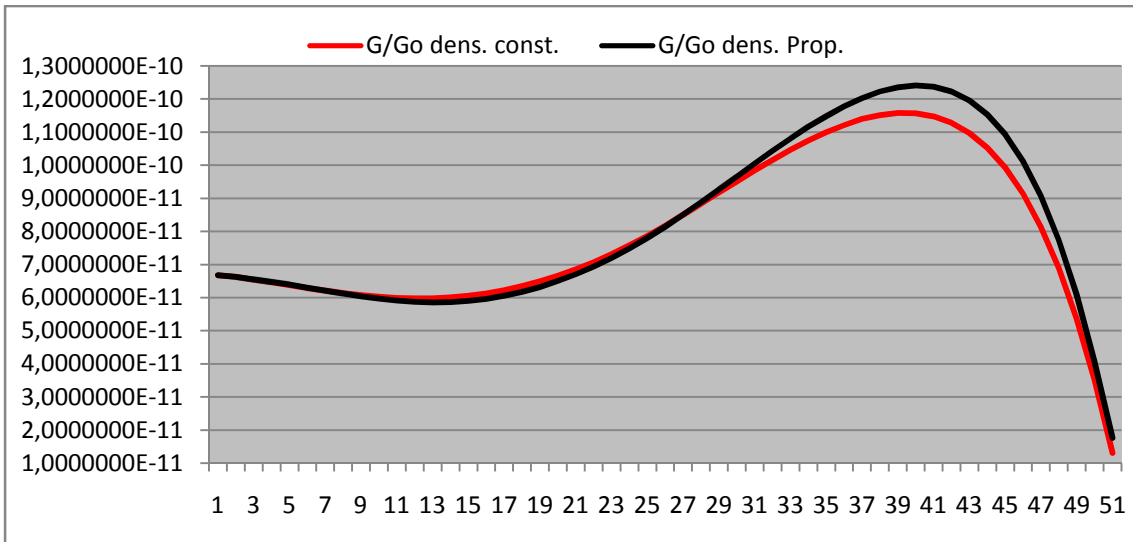
Comparison of the results between the proposed solution for mass distribution and the proposed constant density

Universal Chart:

Quadro Universal				
Situation:			Não relativista	
Universal mass	1,2915519E+53	41,61%	3,8076729E+52	-51,39%
Total energy of mass	1,1607890E+70	41,61%	3,4221657E+69	
Radius of the Universe(m)	1,4377821E+26	0,00%		
Radius of the Universe (al)	15.197.368.421	0,00%		
Central Go.	6,67401343E-11	0,02%		
Max. escape velocity of the universe.(light)	187.441.095,8	-3,23%	37% do Raio do Universo	
Max. translation velocity of matter	132.389.011,9	-3,32%	37% do Raio do Universo	
Radial velocity of matter	104.984.448,2	1,49%	37% do Raio do Universo	
Total velocity of matter	168.963.264,7	-1,55%	37% do Raio do Universo	
Escape velocity of system Sun-Earth	46.594.793,8	6,93%		
Translation velocity of Sun-Earth	32.550.935,2	5,64%		
Radial velocity of matter Sun-Earth	5.096.471,8	0,00%		
Total velocity of Sun-Earth	32.947.494,7	5,50%		
Solar mass	1,989100E+30	0,00%	1,976125E+30	-0,11%
Nº of universal solar masses	6,493147E+22	41,61%	1,926838E+22	-51,33%

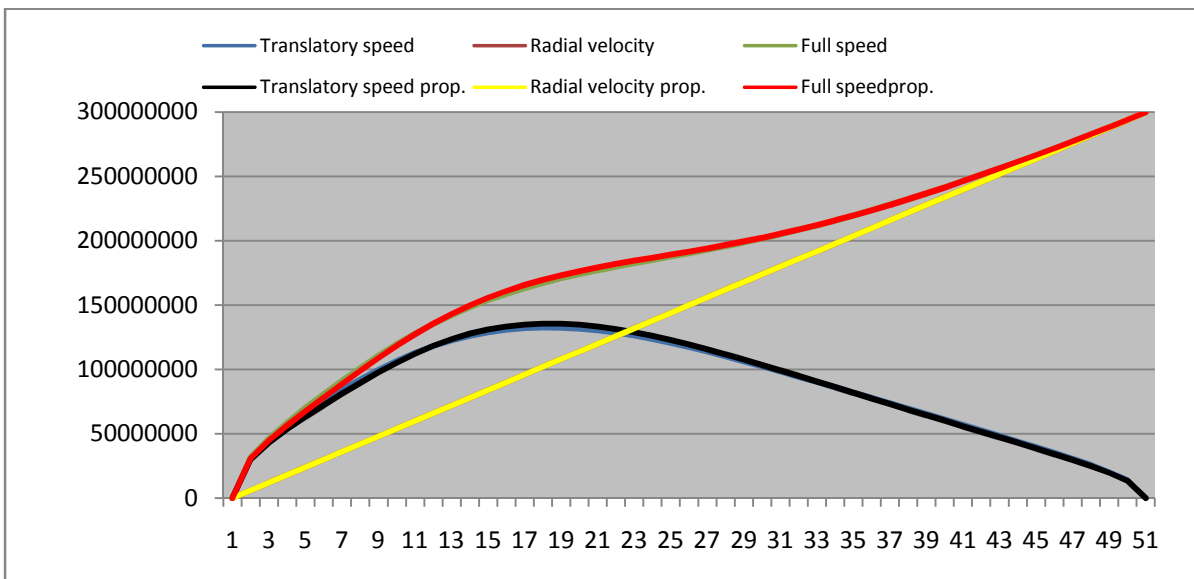
N° of universal solar masses	64.931.472.440.143.800.000.000	41,61%	19.268.379.499.825.500.000.000	-51,33%
Volume of Universe	1,2449985E+79	0,00%	1,2449985E+79	
Mass's average density	1,0373924E-26	41,61%	3,0583756E-27	-51,39%
Mass energy density	9,3236178E-10	41,61%	2,7487309E-10	

Variation of gravity along the radius of the Universe: Central gravity in the case of distribution with constant density will have the value of 6,67401343E-11, in the proposal of 6,67291413E-11:

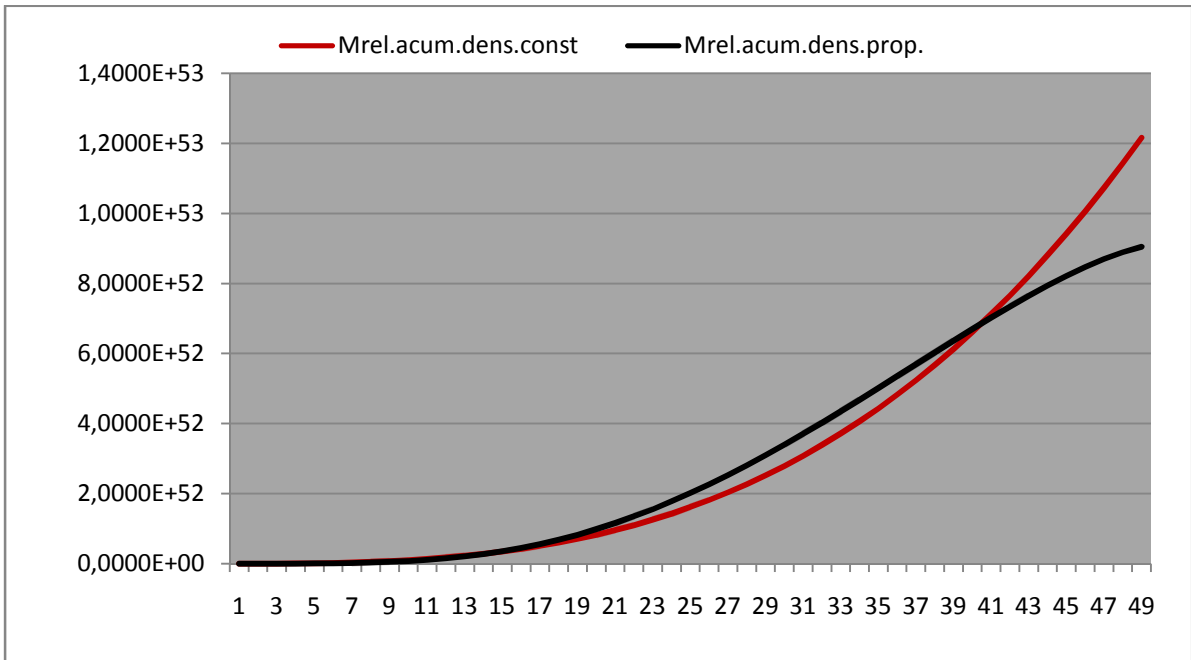


Magnetic permeability variation variable: the variable at the center of the Universe, in the case of mass distribution with constant density will have the value 1,25691E-06 and in the proposed solution the value of 1,25670E-06:

Universe Velocities:



Mass distribution along the radius of the universe.



Mass density distribution:

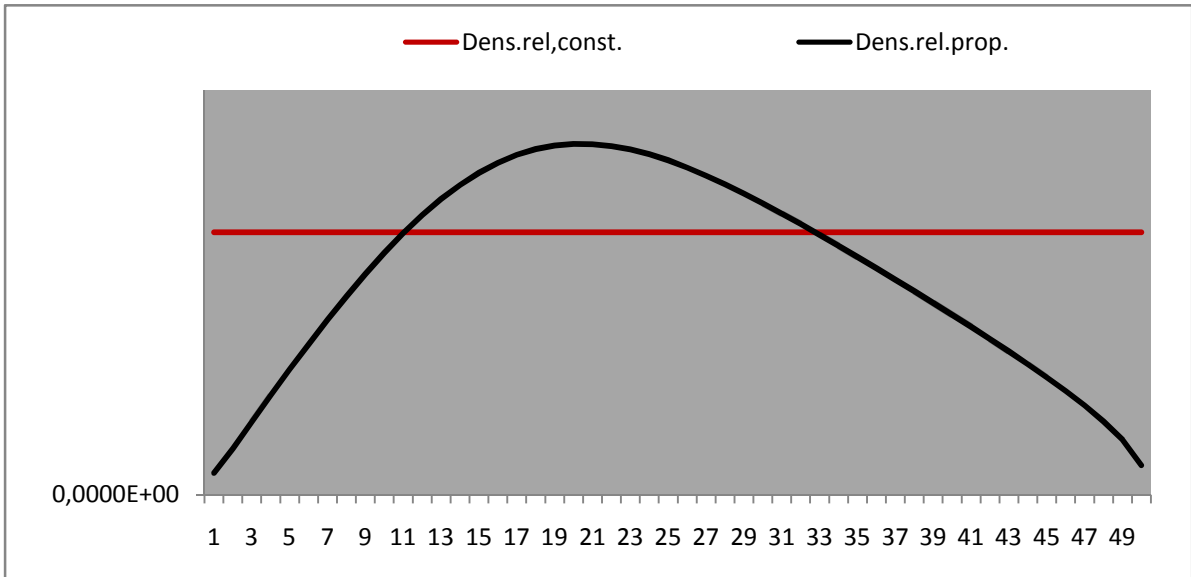


Chart 6

Impact caused on the universal values resulting from other locations of the earth in the universe.

Regarding the tax rates will not have a significant impact.

The variation rate of the gravitational variable and permeability variable of the vacuum, do not suffer any change.

Table of deviations from location 0,017 of Ru - Local Earth.

Variation in relation to localization 0,017 of Ru - Local Earth			
Localization of the local Earth in the ray of universe		5.19%	0.18%
Universal mass		-0.001%	-0.18%
Central Go		+0.001%	+0,49%
Speed of the Earth in the Universe		+97.662%	+180.456%