

# **The new magnetic permeability of vacuum.**

The impact in the Cosmo's analysis.

Its impact in set with the gravitational variable

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To my dearest mother.

To the sweet memory of my father.

After the development of the new theory on the electromagnetic field, where the magnetic permeability of the vacuum started to be 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 effect is presented.

## **Change made in March 2009**

### **1-The appearance of the gravitational variable and its implications.**

According to the theory presented previously in the article “The new magnetic permeability of the vacuum. A new Insight of the universe”, allows the study of which fundamental elements as Universal mass, the values of the gravitational variable in time and along the radius of the Universe, dimension of matter, photon's energy, stars and its evolution.

We can also carefully study the solar system.

## Speculation

### 2-The universal model

The model adopted had in consideration the principles already pored when studying the universal gravitational variable and in the following points:

- The universal charge is distributed in the same way as relativistic mass.
- It was considered the Doppler effect caused by the radial velocity of the universal electric loads.
- The earth was considered as being 0.017 in order of the Universe's radius, as stated in the previous article “

The new gravitational variable, a new insight of the universe”

- The computer model used and created, as stated in the previous article, was also the same.

### Quantification of the theory.

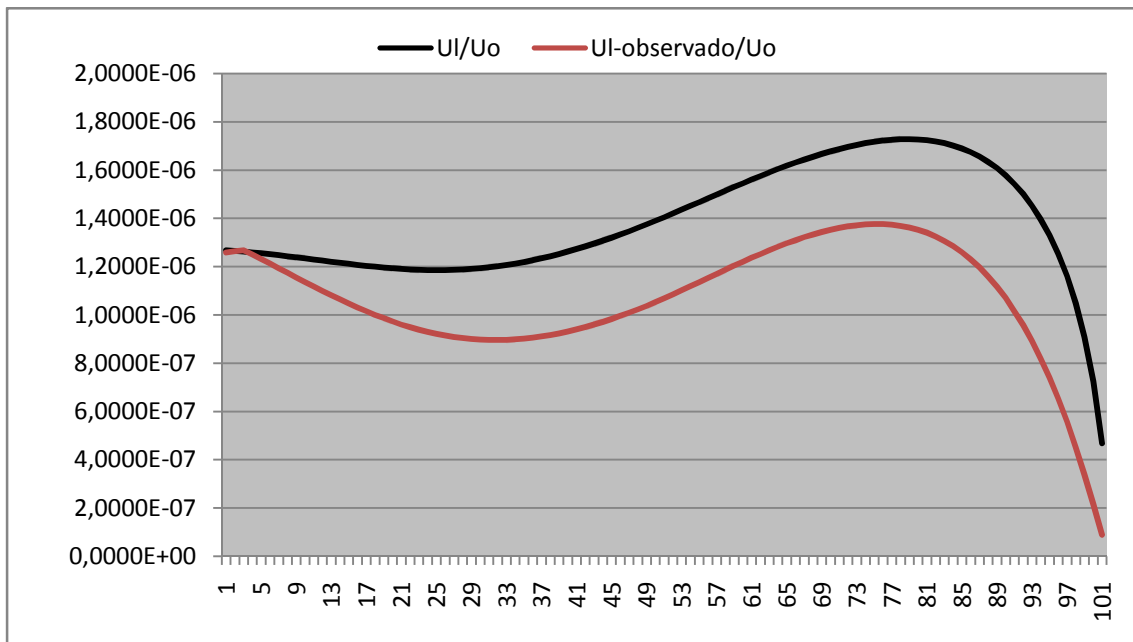
### 3-Results

Universal charge scenario

Cenário carga Universal	
Situação	
Raio das cargas	Raio do Universo
Raio do Universo	1,4377821E+26
Carga Universal em nível de energia negativa. - C	6,77132E+32
N.º of free electrons in negative levels of energy - equivalents	4,226325E+51
Value of Uo central	1,256699E-06
Radius of electric loads localization	5,2542013E+25
Radius of electric energy emission/Ru (m)	36,544%

The development of the permeability variable value curve along the radius of the universe, is, regardless the location of the earth in the universe. The development of the curve depends exclusively on the type of mass distribution in the Universe.

Value of the variable magnetic permeability of the vacuum and the current date of issue of the light received on Earth



**Variation of the magnetic permeability of vacuum throughout time.**

The magnetic permeability variable of vacuum throughout time, varies in the same proportion as the growth of the universe's radius.

**4- The characteristics of matter throughout the radius of the universe.**

In this chapter let's try to characterize matter along the radius of the universe, considering the evolution of the magnetic permeability variable of vacuum and the relativist mass of the atoms. Let's therefore characterize the radius of the atom and the photon's energy of any given element.

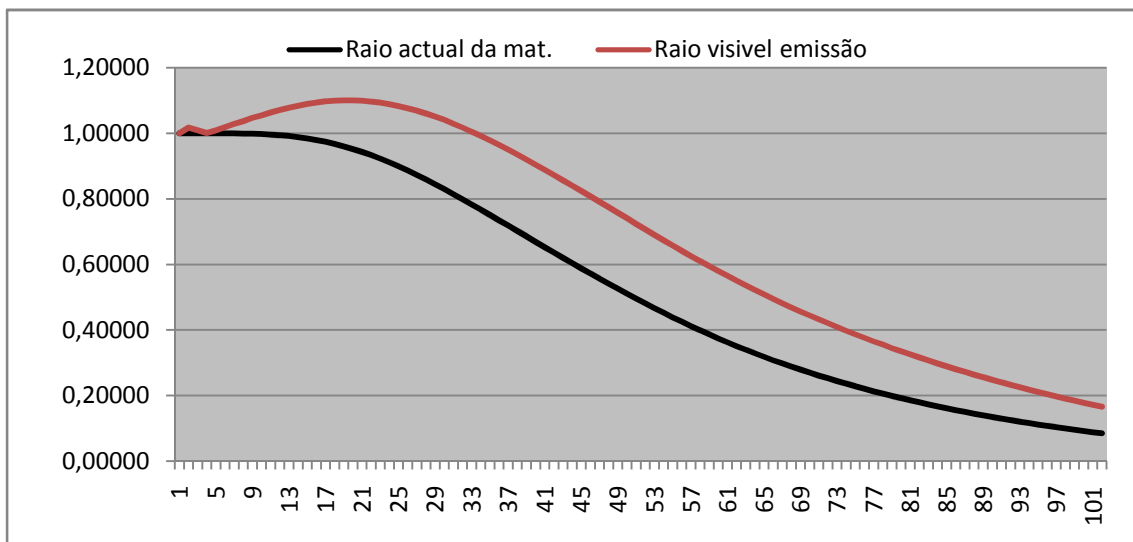
The variation of the matter radius throughout the radius of the universe was already studied previously.

$$\frac{R_1}{R_0} = \frac{U_0}{U_1}$$

As we already know the value of the magnetic permeability of vacuum along the radius of the universe, as the relativistic mass of the element, because we also know the shift velocity of the matter along the radius, we are now ready to assess the atomic radius dimension of one element along the radius of the universe.

From the calculation we are able to know the emission age of the mass radiation that currently we receive on the planet, we are able to determine what the radius of the matter is in the time that its radiation was emitted and the point previous to its current dimension.

Charter of the matter's radius evolution along the radius of the universe. (Quantum mechanics)08-01-09



### Photon's energy

Let us now see as the photon's energy evolves along the radius on the universe and time. I characterize also which its values on the time of emission that today arrive to the local solar system and the current values along the universe.

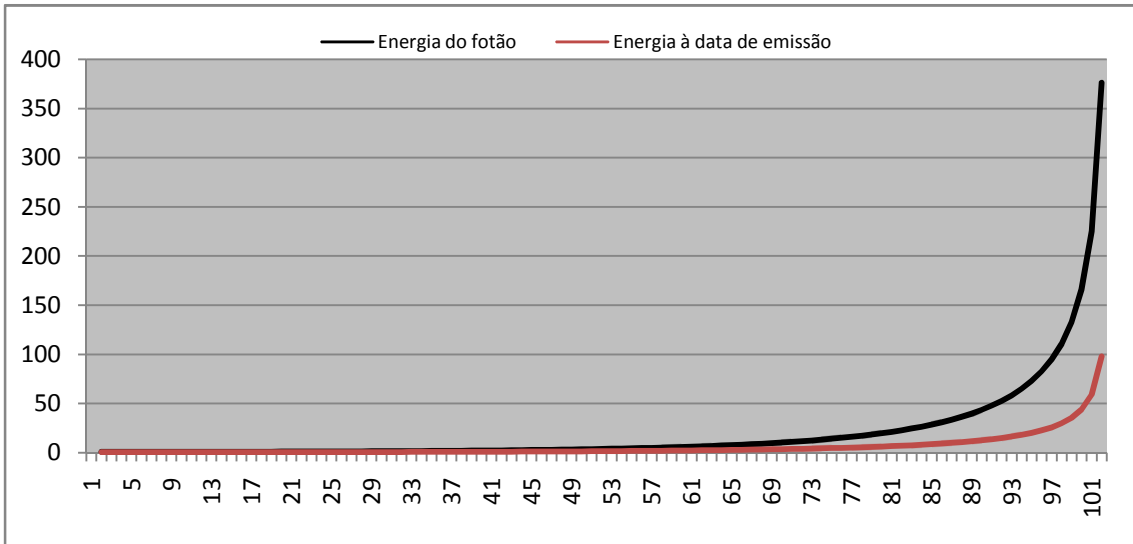
From quantum mechanics we take the case and the magnetic permeability of vacuum, U, vary:

$$E_1 = \frac{m_1 U_1^2 C_1^4 z^2 e_1^4}{2 (4 \pi)^2} \left( \frac{2 \pi}{h} \right)^2 \frac{1}{n^2}$$

$$\frac{E_1}{E_0} = \frac{U_1^2 t_0}{U_0^2 t_1}$$

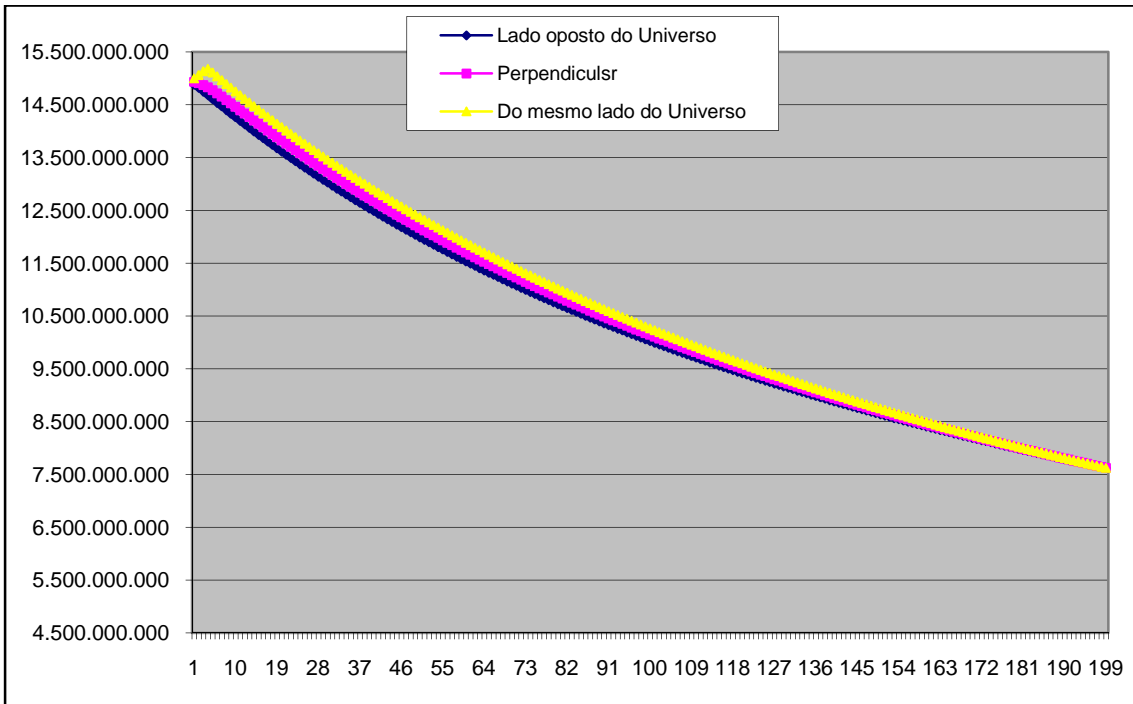
Well, U, as we have seen has no units, is a part. It is the part that loads are universal to the local radiation.

Charter of the photon's energy evolution and the perception from the Earth.



For better understanding the charts presented let us show the age of the universe, relatively to the date of the light emission that we currently receive from the stars.

Emission age of the stars



## 5-The disturbance in the light frequency, on its path, caused by universal matter.

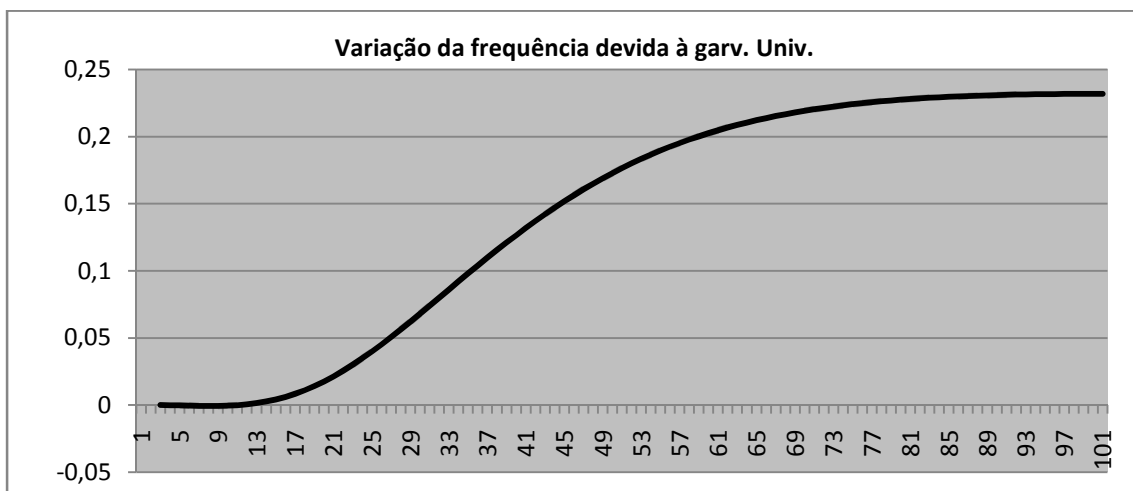
Let us now see, what is the universe's mass impact, on the alteration of the light frequency during a path (I).

The light frequency under the action of matter decreases, when its action over the radiation is in the opposite direction of its movement. When the action is felt on the same direction of its propagation, then the frequency will increase.

For the calculation of the universal gravity effect, over the radiation, it was still attended the universal gravity's action over the radiation emission frequency,  $\frac{\partial \sqrt{f}}{\sqrt{f}} = \frac{g l}{c^2}$ , in the accelerations by gravitational attraction in the same direction as radiation as well by the decelerations on the opposite direction of that radiation, respecting the gravity values found by the radius of emission on its path, as well as the variation of g since the start till the finish.

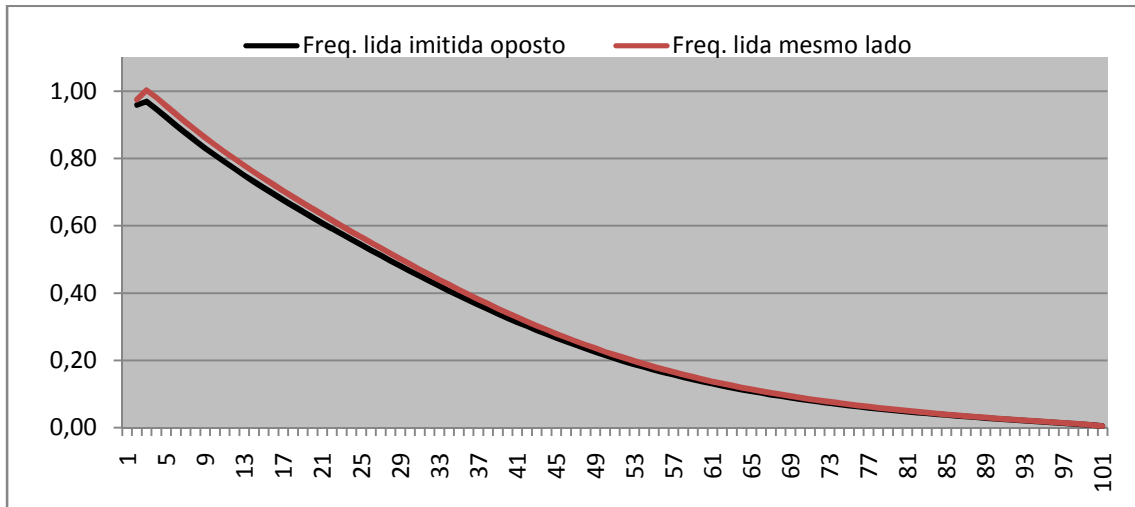
For the calculation of the gravity's action, the path was divided as many times as the number of parts in which the matter and the radius of the universe were divided.

Universal Gravity: Effect of relativity mass.



Given that the earth is on very close to the center of the universe, the variation of the gravity's action over the emission of light is very similar in any direction considered.

If the Doppler Effect is given in consideration, then the value of the frequency will be affected by:08-01-09

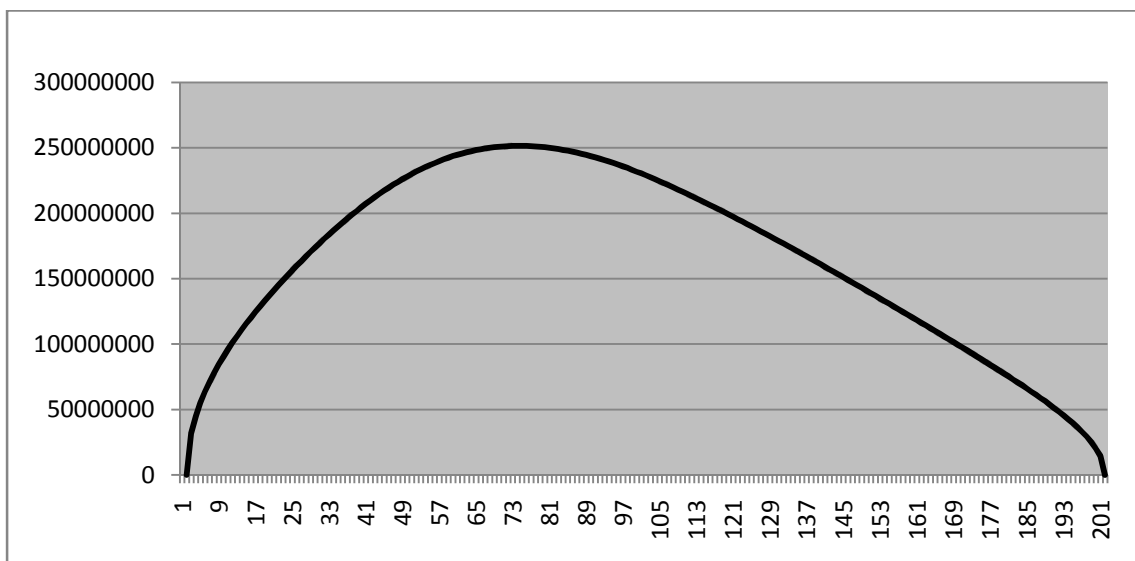


Given that the value of the gravitation is dependant of the radius of the universe, what insures a constant gravitational potential, and that radial velocity is unchangeable, the impact caused either by gravity or by the Doppler Effect will always be constant, regardless considering the time of vision or the real time.

### Escape velocity in the Universe

In the sense and in order to exclusively verify if the light is capable of crossing the whole universe, let us see which is the radial escape velocity of the universe.

Once again, let us remind ourselves that in the new model of universe is the increase of gravity that allows the open and plain growth of the universe.



As in any point of the universe, the radial escape velocity towards the outside is lesser than C, for which light crosses all universe.

## Considerations and speculation

### 6-The light from the stars

In this chapter let us try to reach some theories about the light emission of the stars, trying to relate its frequency of emission, with its mass, its radius and its location on the universe. All characteristics are obtained in order of the values that they possess towards the local centre of the universe.

I confess that I thought and re-thought this subject out, and given that its model changes the local values where the stars are located, I tried from the new universal model, create a mathematical expression that would be able to express what is the star's light emission power, given it's mass, it's radius, the value of gravity and the magnetic permeability of vacuum.

The radiated power by  $m^2$  form the stars, according the Stefan law will be given by:

$$W_{rad} = 5.67E-08 T^4$$

$$W_{radT} = 4 \pi R^2 5.67E-08 T^4$$

- Traditional model, considering what has already been done in the power of the star is a function solely of its mass  $^4$ .

$$Pot = K(M)^4$$

Now I'm trying to build an argument that is able to reconcile theory with quantum mechanics also depend on making of G.

$$Pot = K(G M)^4$$

$$T = 1,18E-12 \frac{GM}{R^2}$$

The variation over time, is given by:

$$Tk_T = 1,18E-12 \frac{G \frac{T_t}{T_0} M}{R^2 \left(\frac{T_0}{T_t}\right)^{\frac{1}{2}}}$$

$$Tk_T = Tk_0 \left(\frac{T_t}{T_0}\right)^{\frac{3}{2}}$$

$$Tk_T = Tk_0 \left(\frac{t_t}{t_0}\right)^3$$

As we know from quantum mechanics:

$$T = k \sqrt{\quad}$$

From the article "The change in radius and energy of matter with the pure potential of universal mass in place:

$$E_t = E_0 \left(\frac{t_t}{t_0}\right)^3$$

$$\sqrt{t} = \sqrt{t_0} \left(\frac{t_t}{t_0}\right)^3$$

$$Tk_T = Tk_0 \left(\frac{t_t}{t_0}\right)^3$$

If we consider the mass loss we will have a much more complex problem, because the emission of radiation drains all the mass of the star.

$$M_0 = M_1 + 4 \pi R^2 5.67E-08 T^4$$

Through informatics programs it is possible to have an idea of what has happened and what will happen throughout time.

### **The "Dark Matter"!**

The last time I had the opportunity to discuss the travel speed of the galaxies, I was told by an academic in the calculation of the gravitational potential at a certain local, they would come into account the mass interior to that local.

I believe that it is not so, all mass of the galaxy contribute to the gravitational potential created in a particular location.

The confusion is related to the concept of potential created by a homogenous mass. Well, then yes we are talking about a single entity, which vibrates at same time,  $h \sqrt{\quad}$ , the whole is what makes the mass

radiation.

Confuse this type of potential created by an entity with the potential created by various entities, seems all wrong.

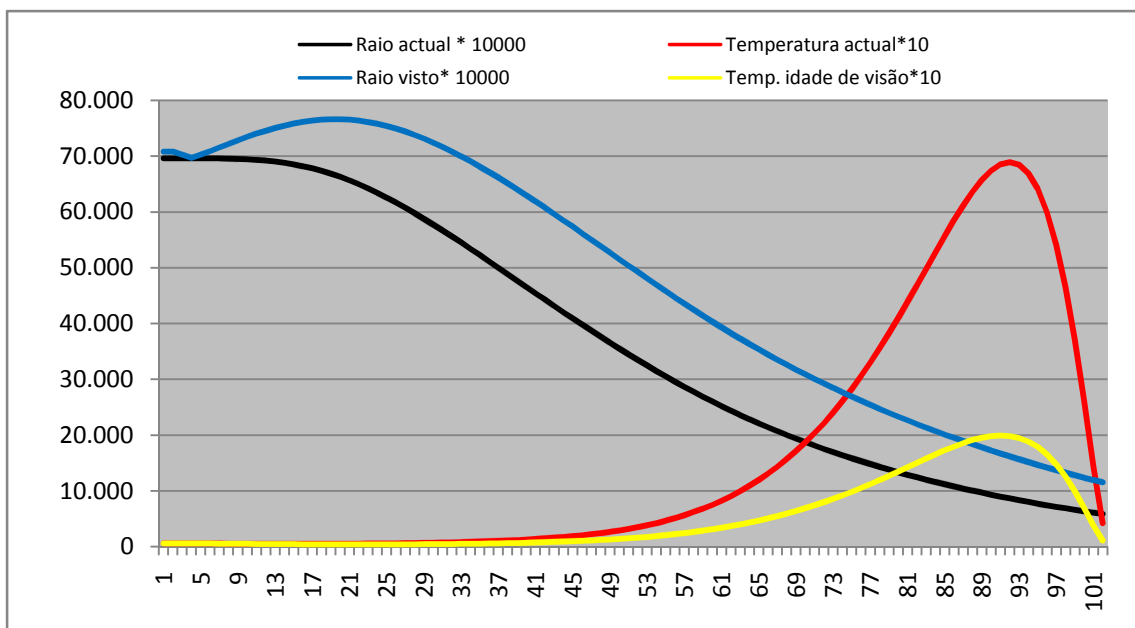
In galaxies, all the masses involved in the gravitational potential created in all parts of the galaxy. To calculate the speed of translation of the galaxies, it is necessary to elaborate a program of gravity in between that has all the masses of the system.

In addition to the holes I admit the existence of mass not radiate, which has no electrons to revolve them. These masses should be the nuclear type, consisting of neutrons and their related parts and multiple neutron.

What impresses me, is the amount of mass required to explain the rotation velocities of galaxies. I am not ruling out any other explanation. The data obtained so far are not structuring of logical reasoning. I suspect there is some other reason for the phenomenon. The galactic gravitational forces are very intense and can significantly change the wavelength of emission and thus distort the calculations of speed. The design of spiral galaxies shows little distortion which leads to deduct low rotational speeds.

### Characteristics of the stars along the radius of the universe

I will now present which of the characteristics of a star with the same mass as the sun, along the radius of the universe, i.e. subdue to gravity condition, electrical permeability and different relativistic coefficients.



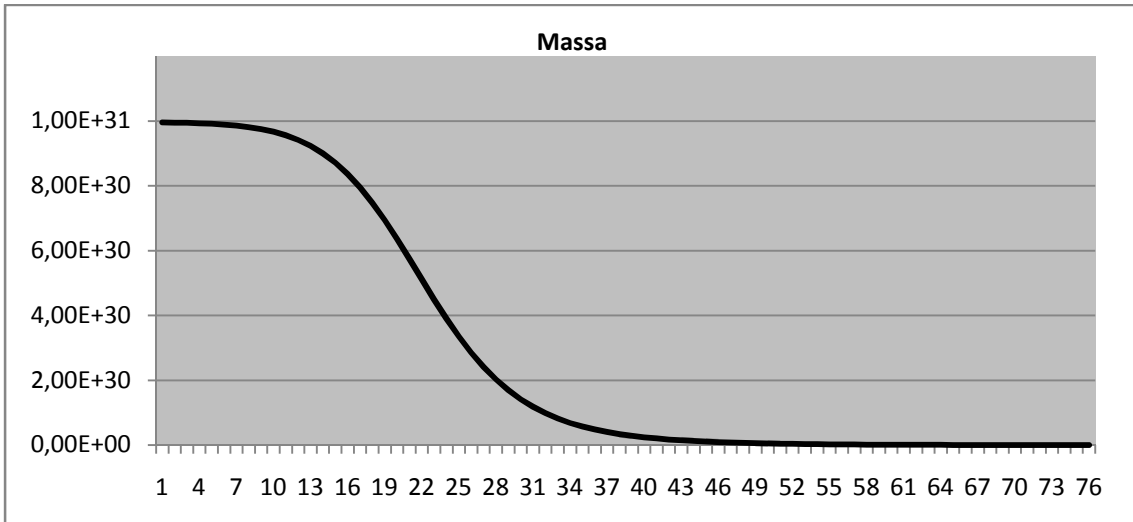
### Average characteristics in the universe

Considering an average star with five times the mass of the sun, subdue to the average gravity of the our universe local.

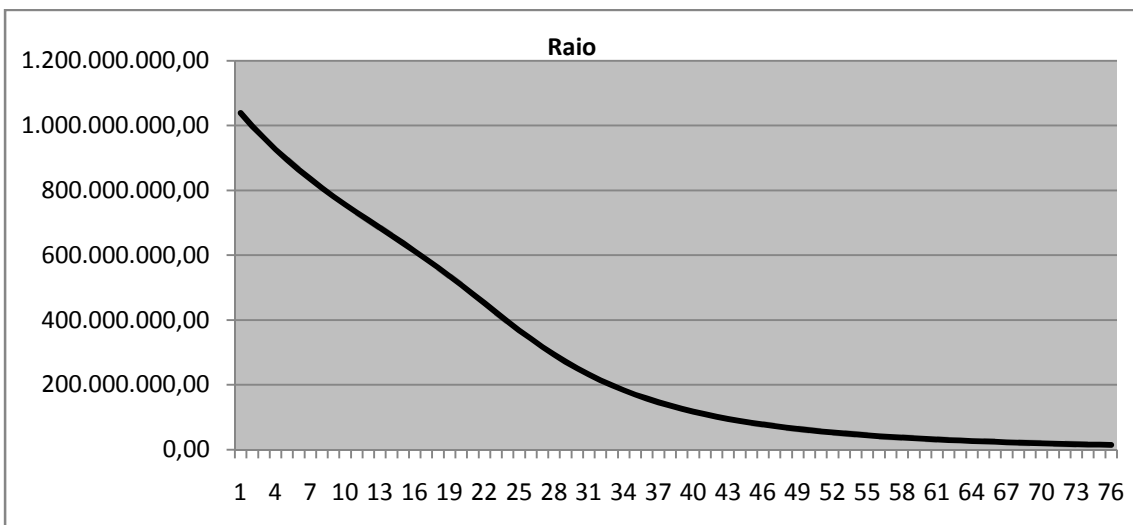
Let us consider that the average star in the universe, will ha  $9,96317E+30$  Kg of mass, there would be therefore,  $8,795E+29,15424E+21$  average stars, subdue to an average gravity of  $6,6726E-11$ .

Let us study how it will, in the next 45.000.000.000 earth years, the variations in its mass, its radius, temperature, power emitted and still the mass expenses without considering any eventual explosion

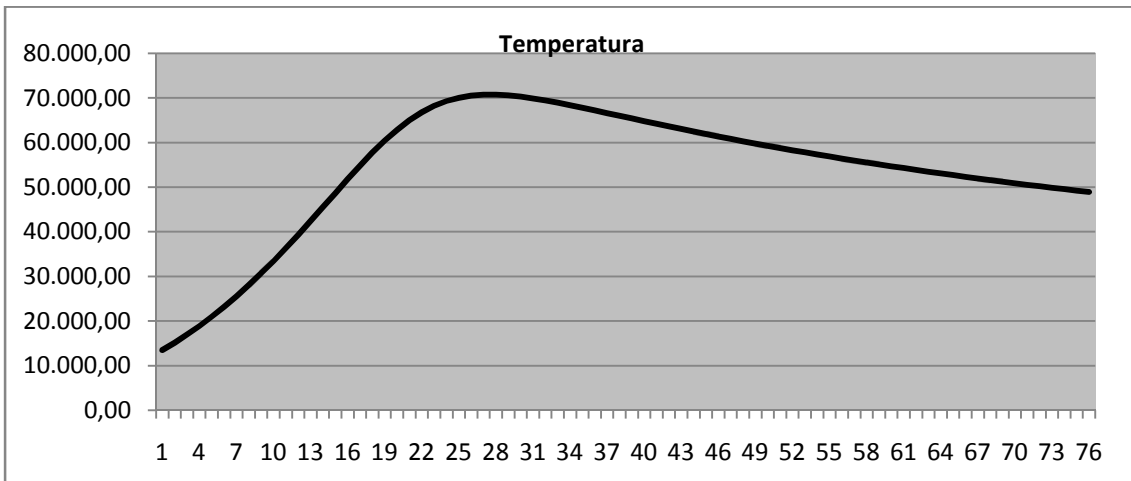
Mass:



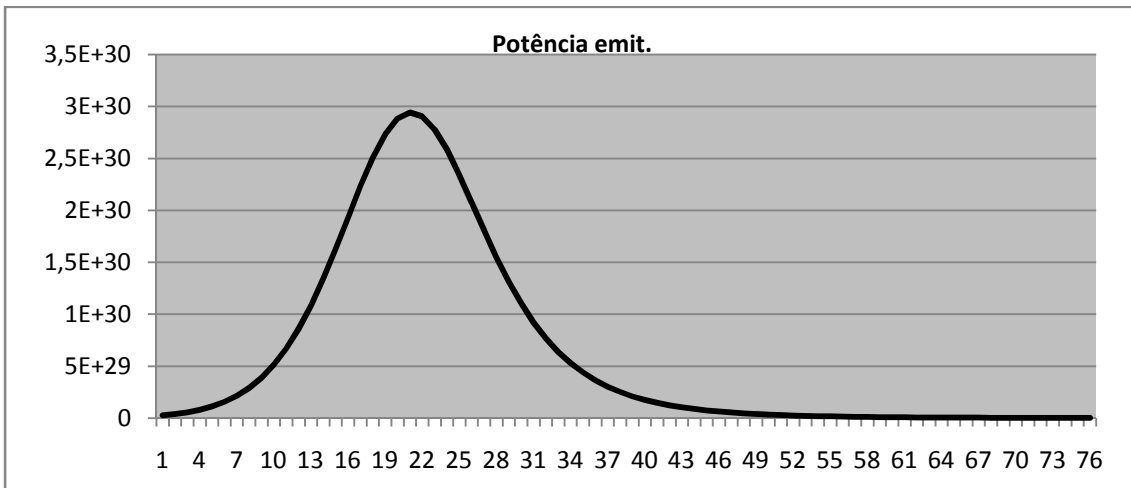
Radius:



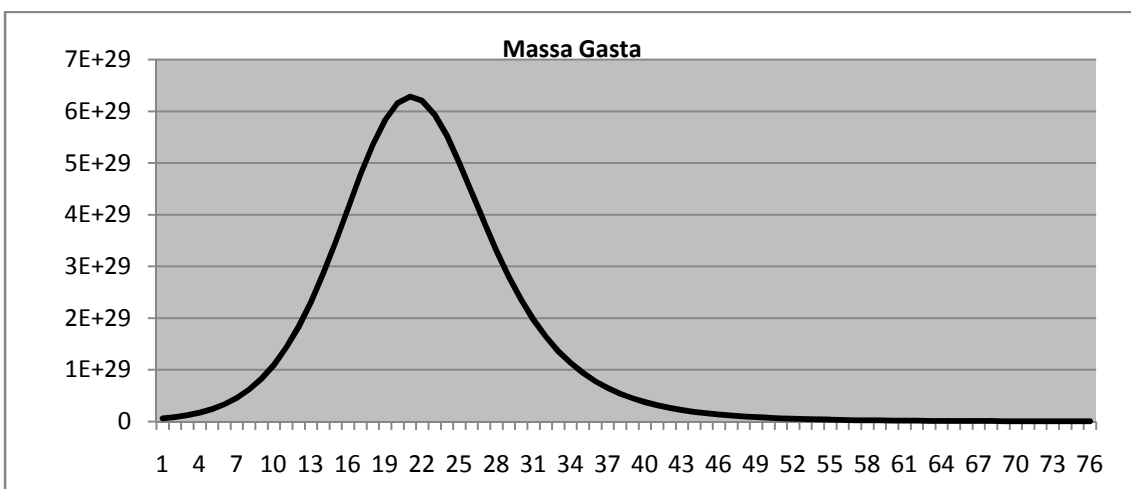
Temperature:



Emitted power:



Consumed mass:



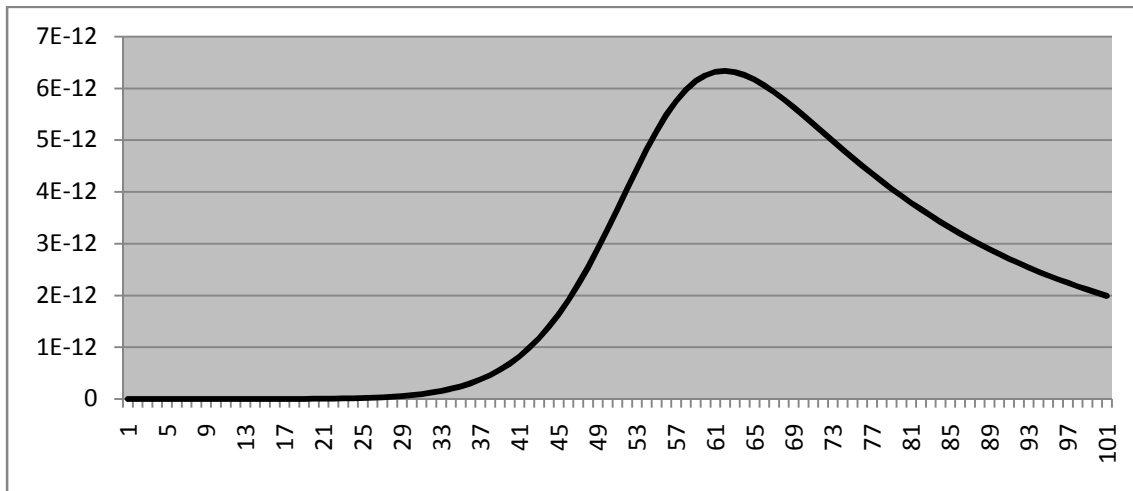
## The universal night

Some authors question themselves about the lighting of the universe, supposing that it would eventually be enlightened.

Based on this theory and based on the average star.

What will happen in the future?

Let us now study the universal density of accumulated radiated power, i.e. the coefficient between the emitted power until a certain date by the volume of the universe on that date.



The maximum density found will be the value of  $6,23729E-11 \text{ w/m}^3$ , that will happen in the next 14.590.000.000 years. Later on the density will decrease.

To this rate, at that time, there would be consumed 71.46 % of all universal matter.

This density of lighting equals, lighting a sphere with 7.256 m of radius with a light bulb of 100W. Total darkness!

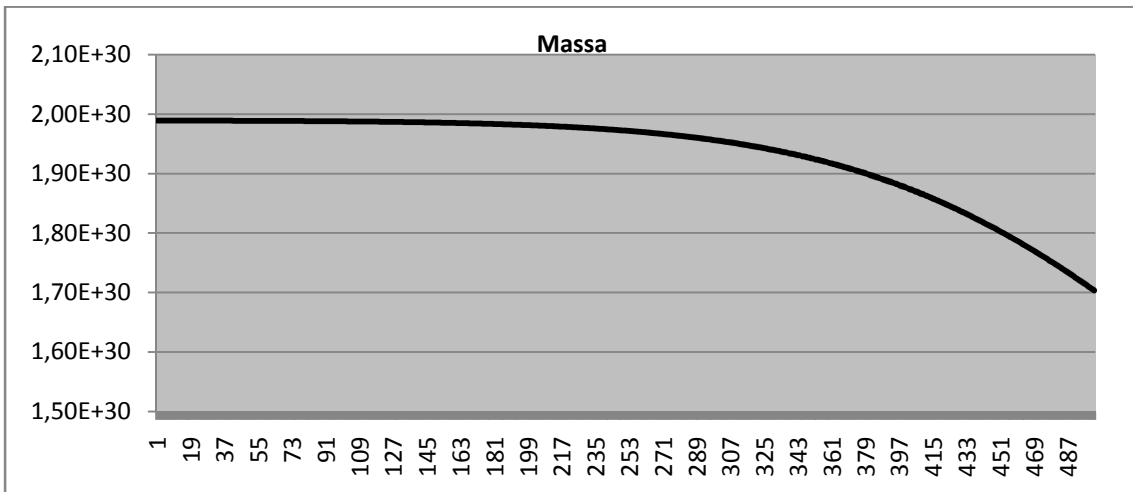
Even if all the mass of the universe was consumed today, in total we would have a density of  $6.584E-10 \text{ w/m}^3$  that would equal lighting a sphere with 3.310 m of radius with a light bulb of 100w.

**The universal night will be eternally dark.**

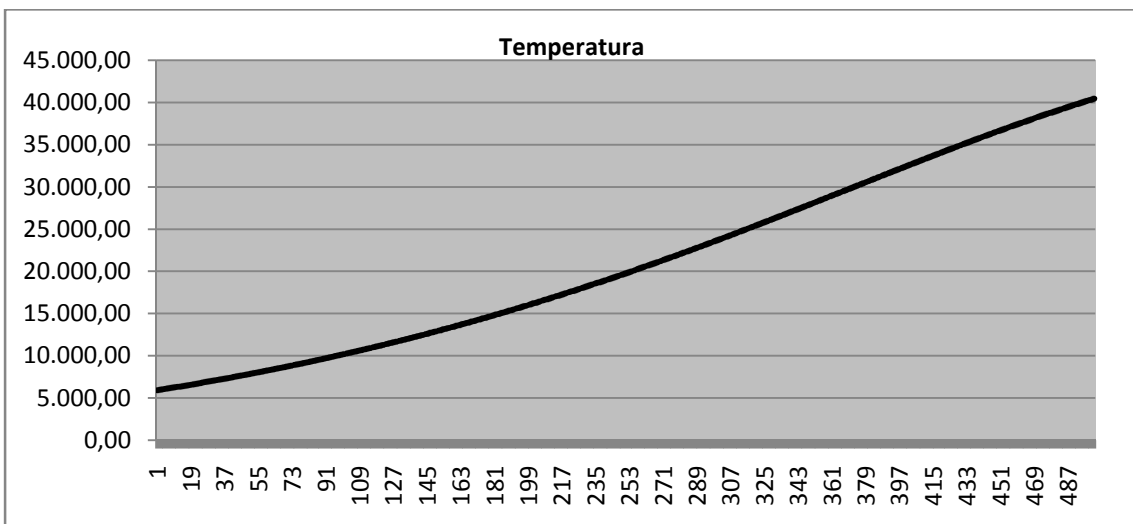
## 7-The sun

Period of time considered was of 30.394.737 year's periods and were studied 500 variations, i.e. the next 15.197.368.421, when the universe will have twice the age of today.

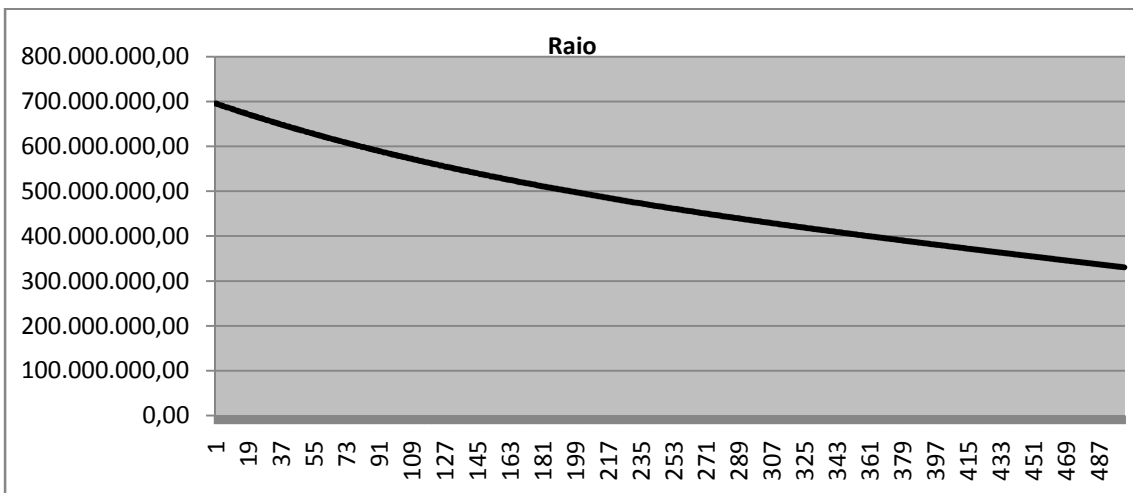
Mass variation;



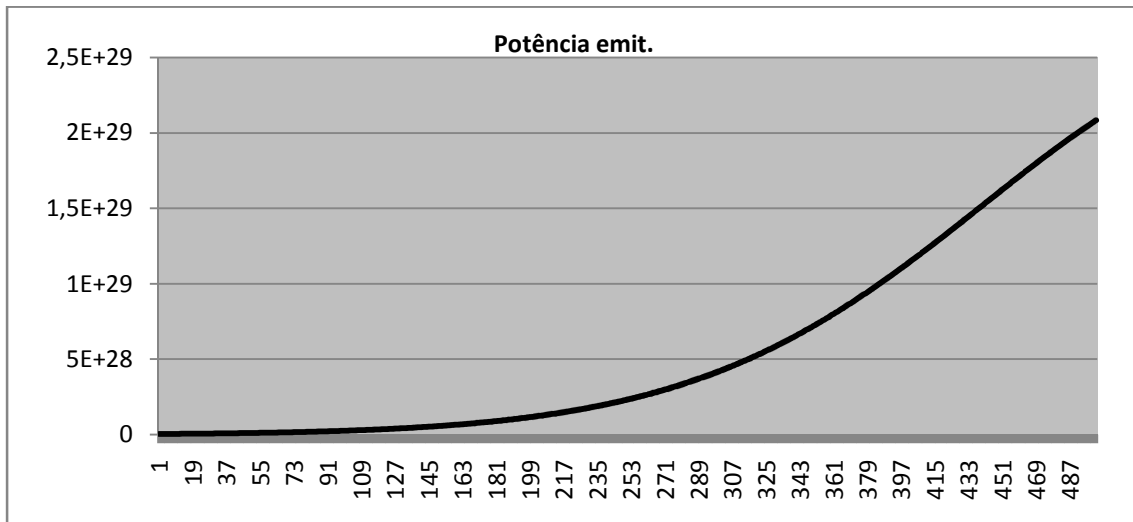
Temperature variation;



Radius Variation



Emitted power



### Close study at the solar system

Given that all the planets have occupied different positions in relation to the sun, I think it is worth to exemplify the past and the future.

All planets of the solar system receive energy emitted by the sun.

The energy emitted by the sun is given by:

$$W = 4 \pi R^2 5.67E-08 T_{sol}^4$$

Therefore the amount of energy that arrives to any planet is given by

$R_p$  – Raio do planeta

$$W = \frac{W_{sol}}{4 \pi d^2} 4 \pi R_p^2$$

Being  $d$  the distance from the sun to the planet

If we look aside the radius of the planet we will have:

$$W = \frac{W_{sol}}{4 d^2}$$

Abbreviating we will have:

$$\left(\frac{T_{planeta}}{T_{sol}}\right) = \frac{1}{4} \left(\frac{R_{sol}}{d}\right)^2$$

As seen previously for the model 1 we will have:

$$T_1 = T_o \sqrt{\frac{R_1}{R_o}}$$

$$d_1 = d_o \frac{R_o}{R_1}$$

Replacing e solving we will have

$$\frac{R_1}{R_o} = \frac{1}{2} \frac{R_{sol}}{d_o} \left(\frac{T_{solo}}{T_p}\right)^2$$

Let us now establish a criterion for the existence of life without attending the escape velocity of the gases from the planet that holds them. Let us assume that the thermodynamic balance for the existence of life is the one that the earth receives, i.e.  $T = 284.561k$ .

Planeta	Raio planeta	Massa	Distância		Raio do Sol à data	Temperatura	
			actual ao Sol	R/Ro		do Sol à data	Comprimento de onda máximo
Vénus	6,06E+06	4,88E+24	1,080E+11	0,92172987	755.112.065	4.620	6,2765E-07
Terra	6,38E+06	5,98E+24	1,496E+11	1,00000	6,9600E+08	5.875	4,93277E-07
Marte	3,37E+06	6,42E+23	2,280E+11	1,111137662	626.353.997	8.093	3,5835E-07
G							
planeta/G							
Tempo para o acontecimento	Raio do planeta	Distância ao sol	Distância do limite do Sol e do planeta		Gravidade	Gravidade local	actual na Terra
-1.189.000.000	6.574.594	2,10163E+11	2,09401E+11		6,15033E-11	6,94	0.71
0	6.378.000	1,49600E+11	1,48898E+11		6,6726E-11	9,809	1,00
1.801.000.000	3.032.928	2,53302E+11	2,52672E+11		7,41418E-11	5,17	0,53

## Venus

This planet received a temperature of 284.561 k approximately 1.190.000.000 years, today it receives 335k.

The sun was more orange than today given its temperature of 4.623k

The wave length emitted by the sun was 628nm, already a little higher than our visible field.

Gravity was 0.71 times smaller than the one we have on earth today.

Temperature	- 30° c	0 °c	30°c
Years	<u>-2.250.000.000</u>	<u>-1.460.000.000</u>	<u>-730.000.000</u>

## Mars

This planet will receive the temperature of 284.561k in approximately 1.690.000 years, today it receives 231 k

The sun at that time will be whiter, given its temperature of 8.096k

The wave length emitted by the sun will be of 364nm, a little lower than our visible field. The sight, of the living beings that will exist then, will be different than the present one.

Temperature	- 30° c	0 °c	30°c
Years	<u>410.000.000</u>	<u>1.350.000.000</u>	<u>2.230.000.000</u>

## Earth

Temperature	- 30° c	0 °c	30°c
Years	<u>-1.150.000.000</u>	<u>-310.000.000</u>	<u>490.000.000</u>

I leave to the specialists the probability analysis, of the planets, to have had or still be having life. Did any of the planets already developed conditions for the development of life as we have on earth today?

Regarding the questions made in the previous article, i think that this presentation of the different characteristics found on the planets when they had, or will have, a temperature equal to the one we have on earth today, it can somehow help to know if there was life in any of them or if there will be.

## **7-The Earth and the Moon.**

“The hypothesis, Darwin tide (1890). The fact that the moon is stepping away from the earth was already known at the time, and then Darwin had the idea that about 4 million years before, the moon was almost connected to the earth and that it spun in 5 hours. One day a tidal wave occurred in the oceans and sent it where it was today”.

As seen the present theory aims to a different solution. The earth and the moon were the same matter mass, when its formation, elongated mass, with two centers of mass and that spun over itself with a rotation velocity equal to the one that the moon possesses today, as the translation velocity around earth (+- 1018m/s)

With the increase of gravity throughout time, and because there were two centers of mass, it stepped away from the earth in the same proportion as the universe grew.

Because they were one, then by being part of one, always keeps the same side facing the earth.

Its separation did not take place 4 million years ago, but much longer than that, near its formation.

If we picture that the masses touched each other, let us now try to define how long ago they separated, given the principle now adopted, in which the radius of matter decreases inversely proportional to the growth of the universe and that the two centers of mass separated on the same proportion as the growth of the universe.

Until now we adopted that the distance between the two centers of mass, is today about 385.000.000 meters.

The earth diameter is 6.378.000 m and the moon is 1.737.400 m. If we picture the two planets touching we would have a distance between mass cores of 8.115.400 meters.

The ratio between the current distance and the distance between the celestial bodies together should be equal to the square of the growth ( $K^2$ ) of the universe. Being  $k$  the growth and  $k$  the decrease of radius.

$$\frac{385.000.000}{K} = 8.115.400 K$$

$$K^2 = 47.44067$$

$$K = 6,8877$$

Therefore the moon separated from the earth when the universe's radius was  $\frac{1}{K}$  of its current one.

-Current radius of the universe  $R_u = 15.197.368.421$  a.l.

-Radius of the universe when the separation took place  $R_{uo} = \frac{R_u}{K} = 2.206.450.400$  a.l.

Therefore the separation took place at the time equal to the difference between the radius of the universe,

$T_{\text{separation}} = 12.990.918.021$  earth years.

In that time the moon would have a translation period around the earth of 3,993 days, same period as the earth's rotation.

In that time we had:

-Earth radius = 43.928.870 meters

-Moons radius = 11.966.722 meters

-Distance between mass centers = 55.896.592 meters

$$55.896.592 = 385.000.000 / 6,8877$$

-The gravitational variable value would be  $G_o = 6.6726E-11 \times 1/6.8877 = 9,68768E-12$

- $G_o = 9,68768E-12$

To the time the density of the earth was 16,8396 Kg/m<sup>3</sup>. The moon would have a density of 10,25327Kg/m<sup>3</sup>. The sun would have a density in the order of 4,310355Kg/m<sup>3</sup>.

What was the translation speed of the moon around the earth on those days, in other words, what was the rotation speed of both around each other?

As:

$$V^2 = \frac{G M}{d}$$

As:

$$G_o = \frac{G}{K e}$$

$$d = \frac{R}{K}$$

$$V_o^2 = V_1^2$$

The translation speed was exactly the same as it is today.

By the same criteria we can conclude that the earth has abandoned the solar crown around 14.156.000.000 years ago, having a translation period of 25.027 days.

### **8-Age of the Earth.**

Given the variation of gravity along time, in order to do a correct dating of the earth through radioactivity, we have to consider this factor.

Because the radiation potential is function of the value  $G$ , and it has increased in time, the average radiation potential will be substantially inferior to the one in nowadays, for which time will be much bigger than the one obtained for the current  $G$ .

The earth shall be much older than we suppose today. If we consider that initial  $G$  was very close to 0, then we would have for average  $G$  half what is seen today.

The radiation potential throughout time would have been inferior than today's, for which the radioactivity is less intense. If it was proportional to  $G$  then the earth it should be much closer than twice the age that we think today.

In the previous point although in a very empirical way it was concluded that the earth should have around 12.690.000.000 years.

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Oporto, since late 2005 to 10 of November 2008