Smooth Bang Theory:

The Universe Steadily Gains Mass With Rate c^3/G

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October 31, 2015

Abstract

According to the spectroscopic data of the light coming from distant galaxies our Universe is expanding. Scientists attribute the source of expansion to the Big Bang event which has hypothetically created all matter in the Universe from a singularity [1].

The Big Bang as an explosion definitely could initiate a movement of the matter speeding outward. However, there is a nuisance in the Big Bang theory to explain the observable acceleration of ongoing process of macrocosm spreading [2]. Why the Universe is expanding faster and faster? How to justify the initial singularity postulated by the Big Bang theory?

This article contains possible answers for the questions. The article describes an alternative (to the Big Bang) scenario for the cosmic evolution. The work draws a conclusion (actually derives it from Newtonian second and third laws of motion, and from the law of universal gravitation) that the Universe is expanding because it is constantly gaining mass with rate c^3/G, where c is the speed of light and G is the gravitational constant.

The source of eternally growing mass is proposed to be an asymmetry in bi-directional process of creation-annihilation of elementary particles which are produced by fluctuations of empty space.

The article shows that the mass of the Universe grows in time starting with mass 0 at time 0 as follows

Mass of Universe — Age of Universe

$$\boldsymbol{Mass} = \frac{c^3}{G} \cdot \boldsymbol{time} \qquad \textit{(a)}$$

where G is the Gravitational Constant,

c - speed of light.

The rate of the growth c^3/G is equivalent to an addition of 203000 solar masses per second to the mass of the Universe. On human scale it is the Bang but on cosmic level it is suitable to talk about smooth process. The increment of mass is small (10^{-18} parts per second) relative to the current mass of the Universe. Hence the name - Smooth Bang – could be an appropriate label for the suggested theory.

It is revealed in the article that the Gravitational Constant can be assembled as a puzzle from fundamental physical and math constants as follows:

$$G = \left(\frac{2\cdot\pi}{137^2}\right)^{11} \cdot \frac{\hbar\cdot c}{m^2} \qquad \textit{(b)}$$

where G is the Gravitational Constant,

$\hbar$ - reduced Planck constant,

c - speed of light,

$m = (m_n + m_p + m_e)/2$ – average mass of neutron and proton + electron pair.

The article also derives the speed of Gravitation – a speed at which the Gravity field propagates from a newly born hadron particle (e.g. neutron)

$$\varsigma = \left(\frac{137^2}{2\cdot\pi}\right)^{11} \cdot c \qquad \textit{(c)}$$

where ς is the speed of Gravity propagation,

c - speed of light.

Overview

The main outcome of the work is the conclusion: mass of the Universe continuously grows with time as follows

$$\boldsymbol{Mass = \frac{c^3}{G} \cdot time} \qquad \textbf{\textit{(a)}}$$

Expression ***(a)*** does not contain Planck Constant $\hbar$ and depends only on the strength of gravity and speed of light even growth rate is nominally equal to generation of 1 Planck unit of mass every Planck unit of time.

It is important that formulae ***(a)*** gives the right answer for the mass of the Universe if its age is known, or reversibly, allows to calculate the age from the mass of the Universe (Figure 1).

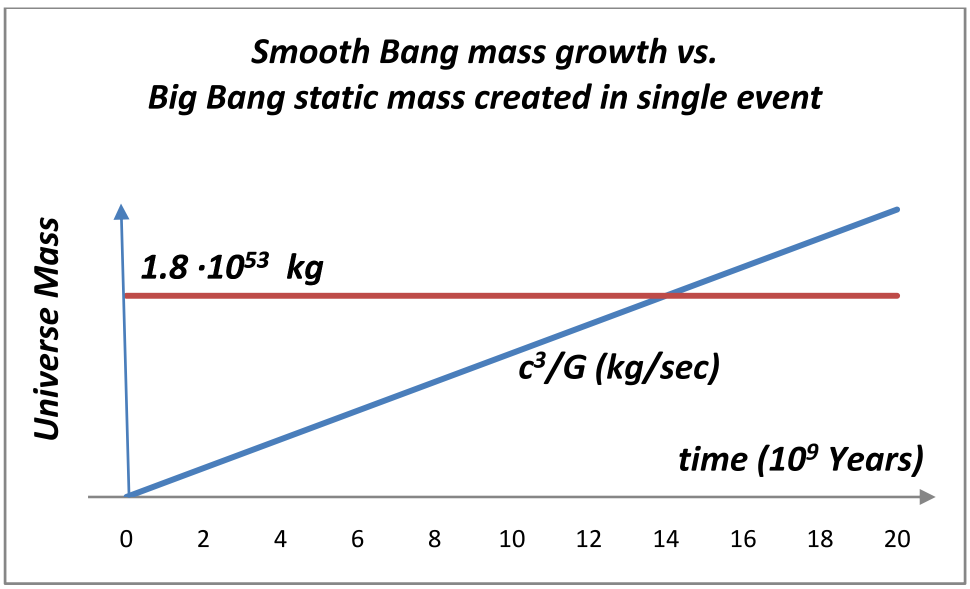

Figure 1

It is not a coincidence that two lines in figure 1 are crossing at the time corresponding to the current age of the Universe (14 billion years). This crossing happens only because the red line does not exist. 7 billion years ago scientists could estimate the Universe's mass as a half of the current one, then would place the red line at the half mark and again the red line would traverse the growing blue line at the correct point of the mass-age relationship.

Formulae ***(a)*** has another peculiar consequence: weaker gravity - more mass is gained per time interval and more power ***(d)*** is exhibited by the Universe

$$Power = E'_t = M'_t \cdot c^2 = \frac{c^5}{G} \qquad \textit{(d)}$$

A relationship between the size of the Universe ***L=c·t*** and its mass ***M*** can also be written as follows

$$Mass = \frac{c^2}{G} \cdot Length \qquad \textit{(e)}$$

Gaining of the Mass is the source of Universe's acceleration ***a***:

$$acceleration = \frac{M'_t \cdot c}{M} = \frac{c}{t} = H \cdot c \qquad \textit{(f)}$$

Note, that this acceleration corresponds to Hubble constant ***H*** multiplied by speed of light ***c***. Thus, the Hubble constant ***H*** is not a constant. It is simply the reciprocal of the age ***t*** of the Universe.

$$H = \frac{1}{t} \qquad \textit{(g)}$$

While acceleration is fading with time as ***a=c/t*** the force of expansion remains constant

$$Force = M \cdot a = \frac{c^4}{G} \qquad \textit{(h)}$$

Author's assumption is next: the Universe constantly adds mass in the process of creation and annihilation of wave-particles caused by fluctuation of "empty" space. Due to the asymmetry in favor of creation - some dry residue of newborn matter is accumulated. It happens continuously and our very existence and curiosity are due to this asymmetry.

Some physicists surely would object to the theory of gaining of mass from emptiness of space because it obviously violates the Conservation of Energy principle.

However the Energy balance on the Universe scale can only be proven if someone will be able to count all protons, electrons and other particles (leave alone photons and neutrinos) in the Universe every second (better - every Planck time) and compare the current count with the previous score.

The uncertainty principle (accepted by majority of scientists) prohibits even remote possibility to measure energy with uncertainty better than $\hbar/\Delta t$, where $\hbar$ is reduced Plank constant and Δt is the time of measurement. An error for energy measurements will never reach 0 Joules. Therefore, the Conservation of Energy principle technically cannot be confirmed.

Anyway, modern physicists have already sullied the Conservation of Energy principle by “allowing” the Big Bang to happen. How an instant mass increase from 0 to the mass of the Universe stipulated in the Big Bang theory is not a violation of the Conservation of Energy principle?

Method of Derivation of Universe's Mass Gain Rate from Newton's Laws

Hubble's observation of the shifts in the star spectra led to conclusion that Universe is expanding. Later observations detected acceleration in this expansion.

If there is acceleration - it should be a force applied to an object (Newton's second law of motion).

Force of expansion $\boldsymbol{F}$ is a spatial gradient of energy (or ratio of energy $\boldsymbol{E}$ to the distance $\boldsymbol{L}$)

$$\boldsymbol{F = \frac{E}{L} = \frac{M \cdot c^2}{c \cdot t} = \frac{M \cdot c}{t}} \qquad \textbf{(1)}$$

where $\boldsymbol{M}$ is the mass of the Universe,

$\boldsymbol{L}$ - the size of the Universe,

$\boldsymbol{c}$ - speed of light,

$\boldsymbol{t}$ - time (age of Universe).

Any force must be compensated by another force (Newton's third law of motion). The only force which opposes the expansion is the gravitational force which can be described by (again Newton's) law of universal gravitation:

$$\boldsymbol{F = G \cdot \frac{M^2}{L^2} = G \cdot \frac{M^2}{c^2 \cdot t^2}} \qquad \textbf{(2)}$$

where $\boldsymbol{G}$ is the gravitational constant.

Equalizing expressions ***(1)*** and ***(2)*** the formula for the Universe's mass growth with time is obtained as:

$$\boldsymbol{M = \frac{c^3}{G} \cdot t} \qquad \textbf{(3)}$$

Second Method of Derivation of Universe's Mass Gain Rate from Einstein's Mass-Energy Equivalence

Using Einstein's Mass-Energy Equivalence $E = M \cdot c^2$ and the potential energy of Gravitation $E = G \cdot M^2 / L$ where $L = c \cdot t$ is the size of the Universe equal to the product of ***c*** - speed of light and ***t*** - time (age of Universe) we can obtain expression ***(4)***:

$$Mc^2 = G\frac{M^2}{c \cdot t} \qquad (4)$$

which after simplification immediately gives formula *(3)*

$$M = \frac{c^3}{G} \cdot t \qquad (3)$$

for the Universe's mass ***M*** growth with time ***t***.

Smooth Bang theory avoids Singularity at Time 0

The Big Bang theory states that **all** currently existing matter of the cosmos has been created in a single event at the beginning of the space and time. In other words: all the mass of the Universe already existed at time 0 in an infinitely small confinement because the matter cannot spread faster than speed of light. Therefore, the word of "Singularity" is synonym of the Big Bang theory.

Contrarily to the Big Bang hypothesis the proposed theory suggests a smooth and steady process of creation of the matter starting with mass 0 at time 0 with constant rate of formation c^3/G.

One might notice that expressions ***(f)*** for acceleration of the Universe has a singularity at time 0. It is happening because the expressions ***(1), (2), (3)*** need to be expanded to cover time less than Planck time. Let's recalculate acceleration.

Acceleration can be written as $a = F/m = (E/d)/m = mc^2/(dm) = c^2/d$. Quantum mechanics requires to substitute distance **d** by reduced Compton's wavelength of a body of mass **m,** namely $d = \lambda\!\!\!^- = \hbar/(m \cdot c)$. Thus, acceleration at Plank scale for quantum time intervals less than Planck time can be expressed as follows:

$$a = \frac{c^2}{d} = \frac{m \cdot c^3}{\hbar} = \frac{c^6}{\hbar \cdot G} \cdot t = \frac{c}{t_{Pl}} \cdot \frac{t}{t_{Pl}} \qquad (i)$$

where t_{Pl} is the Planck's time.

Now it is possible to stitch expressions ***(f)*** and ***(i)*** together to reflect calculations for acceleration on both Universe and Planck scales of distances. Resulting acceleration $\boldsymbol{a}$ in expression ***(j)*** grows proportionally to the time $\boldsymbol{t}$ for the time interval less than Plank time and diminishes inversely proportional to the time bigger than Planck time

$$a = \frac{c^2}{d} = \frac{m \cdot c^3}{\hbar} = \frac{c^6}{\hbar \cdot G} \cdot t = \frac{c}{t_{Pl}} \cdot \frac{t}{t_{Pl}} \cdot \left(1 - exp\left(-\frac{t_{Pl}^2}{t^2}\right)\right) \qquad (j)$$

The recalculated force of expansion shows that it quickly (in a few Planck intervals) reaches its limit and states virtually constant what is reflected in expression ***(k)***:

$$F = M \cdot a = \frac{c^4}{G} \cdot \frac{t^2}{t_{Pl}^2} \cdot \left(1 - exp\left(-\frac{t_{Pl}^2}{t^2}\right)\right) \qquad (k)$$

In the frame of proposed theory all physical parameters of the Universe do not have singularity at time 0. Everything starts from 0 values: time, mass, acceleration, force, energy and power.

Figure 2 depicts graphically the expressions ***(j)*** and ***(k)*** which are respectively the behavior of the acceleration (normalized to c/t_{Pl}) and the force of expansion (normalized to c^4/G) at the beginning of the time and the Universe.

The described process is smooth. But it is still the Bang on human scale with astonishing force of $c^4/G = 1.2 \cdot 10^{44}$ **N**.

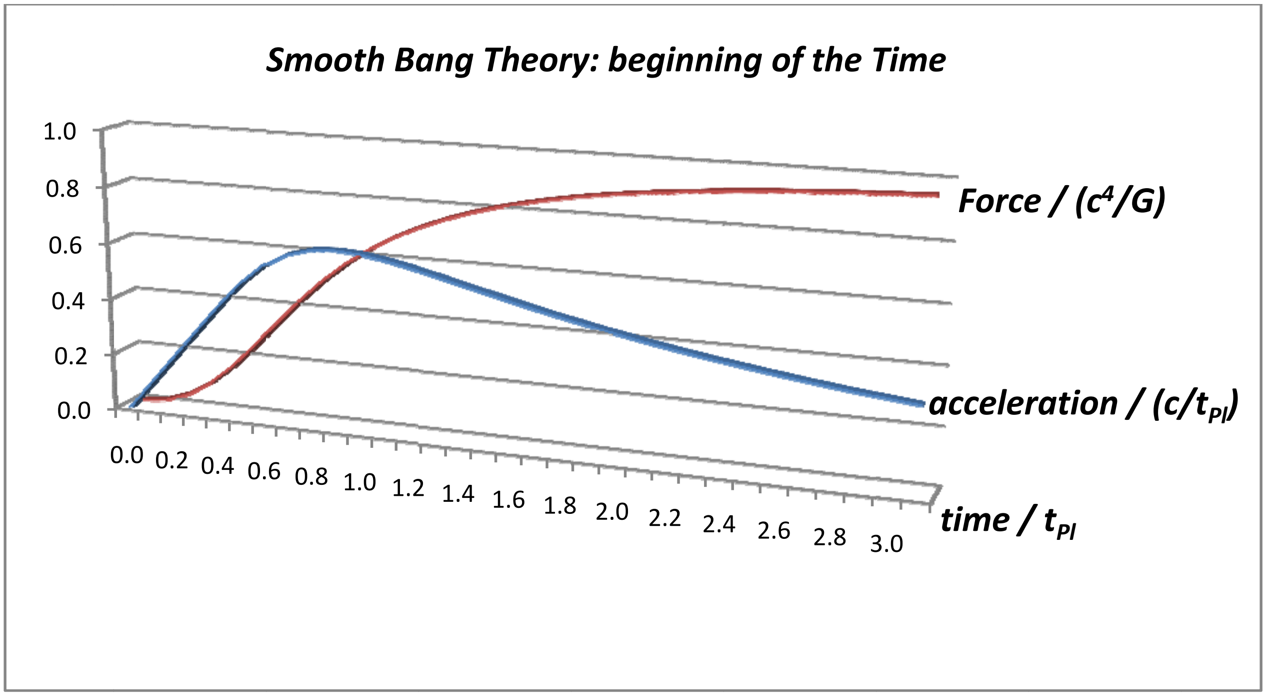
Smooth Bang Theory: beginning of the Time
1.0
0.8
0.6
0.4
0.2
0.0
Force / (c4/G)
acceleration / (c/tPl)
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
time / tPl

Figure 2

Method of Derivation of the Gravitational Constant value

Based on formula ***(3)*** for the expanding Universe's mass ***M*** growth with time ***t*** the rate of increase in mass of the Universe is equal to

$$\frac{dM}{dt} = \frac{c^3}{G} \qquad (4)$$

During the process of mass creation the newly born particles should be electrically neutral like neutron to preserve overall charge. Let's calculate first the ratio of neutron mass to its reduced Compton time:

$$\frac{dm_n}{dt_{compton}} = \frac{m_n^2 \cdot c^2}{\hbar} \qquad (5)$$

Divide formula ***(5)*** by ***(4)*** and get dimensionless gravitational coupling constant ***(6)***:

$$\frac{m_n^2 \cdot G}{\hbar \cdot c} = 5.9 \ldots 10^{-39} \sim \left(\frac{2 \cdot \pi}{137^2}\right)^{11} \qquad (6)$$

The numerical value ***$5.9\ldots\cdot 10^{-39}$*** is calculated from experimental data for physical constants participating in the formula's ***(6)*** left side.

The numerical expression on the right side of the formula ***(6)*** has been found by next method.

A. If Gravity is related to electromagnetism with its characteristic Fine Structure constant $\alpha = \frac{1}{137} \cdot \left(1 - \frac{1}{2} \cdot \frac{\pi^2}{137^2} + \cdots\right)$ then it is possible to calculate how many times coefficient $\frac{\pi^2}{137^2}$ needs to be multiplied to itself to be closest to the gravitational coupling value of ***$5.9\ldots\cdot 10^{-39}$*** but not below it. The answer is ***11***.

B. $\left(\frac{\pi^2}{137^2}\right)^{11} = 8.5 \ldots \cdot 10^{-37}$

C. The remaining value ***$5.9\ldots\cdot 10^{-39}$ / $8.5\ldots\cdot 10^{-37}$ = $6.94\ldots\cdot 10^{-3}$*** itself could be power of ***11***.

It is indeed $6.94 \ldots \cdot 10^{-3} = \left(\frac{2}{\pi}\right)^{11}$

D. Thus gravitational coupling constant value can be expressed as

$$5.9\ldots\cdot 10^{-39} = \left(\frac{\pi^2}{137^2}\right)^{11}\cdot\left(\frac{2}{\pi}\right)^{11} = \left(\frac{2\cdot\pi}{137^2}\right)^{11}$$

For more accuracy, instead of neutron mass m_n it is better to use average mass between neutron m_n and proton + electron pair mass $m_p + m_e$ because atoms consist of neutrons, protons and electrons.

$$\frac{((m_n+m_p+m_e)/2)^2\cdot G}{\hbar\cdot c} = \left(\frac{2\cdot\pi}{137^2}\right)^{11} \qquad (7)$$

The result matches to the experimental measurements of all physical values in the left part of formula ***(7)*** with relative precision 10^{-8}. Then Gravitational constant G is extracted from equation ***(7)*** to obtain formula ***(b)***.

$$G = \left(\frac{2\cdot\pi}{137^2}\right)^{11}\cdot\frac{\hbar\cdot c}{m^2} \qquad (b)$$

where G is the Gravitational Constant,

$\hbar$ - reduced Planck constant,

c - speed of light,

$m = (m_n + m_p + m_e)/2$ – average mass of neutron and proton + electron pair.

Numerically, expression ***(b)*** yields value of $6.67409850(8)\cdot 10^{-11}\ m^3\ kg^{-1}\ s^{-2}$ for the Gravitational Constant with relative uncertainty 10^{-8} mostly attributed to the deviation of the reduced Planck constant.

Additionally, considering that $137^2 \sim \alpha^{-2} - \pi^2$ where α is the Fine Structure constant the expression ***(b)*** for the Gravitational Constant can be alternatively written as

$$G = \left(\frac{2\cdot\pi\cdot\alpha^2}{1-\pi^2\cdot\alpha^2}\right)^{11}\cdot\frac{\hbar\cdot c}{m^2} \qquad (8)$$

where G is the Gravitational Constant,

α - Fine Structure constant.

$\hbar$ - reduced Planck constant,

c - speed of light,

$m = (m_n + m_p + m_e)/2$ – average mass of neutron and proton + electron pair.

Formula ***(8)*** shows that gravity constant could take value of ***0*** if electromagnetic coupling constant $\boldsymbol{\alpha}$ would be ***0***. It means the gravity is a residue of electromagnetism: no electricity – no gravity.

The Gravitational constant could also be negative if $\boldsymbol{\alpha}$ would be bigger than ***1/π.*** Likely the Fine Structure constant value lies in the range between ***0*** and ***1/π*** – namely $\boldsymbol{\alpha}$ ***=0.00729735…*** and all objects still attract each other.

Method of Derivation of the speed of Gravitational

Using formula ***(3)*** it is possible to determine how much time t_n is needed for the Universe to create a single neutron

$$t_n = \frac{G}{c^3} \cdot m_n \tag{9}$$

where t_n is the time needed for the Universe to create a single neutron,

G - Gravitational Constant,

c - speed of light,

m_n – mass of neutron.

Meanwhile during the creation of neutron the gravity should propagate the distance equal to the size of the neutron which corresponds to the reduced Compton wavelength of neutron

$$\lambdabar_n = \frac{\hbar}{m_n \cdot c} \tag{10}$$

where $\lambdabar_n$ is the reduced Compton wavelength of neutron,

$\hbar$ - reduced Planck constant,

c - speed of light,

m_n – mass of neutron.

Thus the speed of Gravity propagation ς must be a ratio

$$\varsigma = \frac{\lambdabar_n}{t_n} = \frac{\hbar}{m_n \cdot c} \cdot \frac{c^3}{G \cdot m_n} = \frac{\hbar \cdot c^2}{m_n^2 \cdot G} \tag{11}$$

where ς is the speed of Gravity propagation,

$\bar{\lambda}_n$ - reduced Compton wavelength of neutron,

t_n is the time needed for the Universe to create a single neutron,

$\hbar$ - reduced Planck constant,

G - Gravitational Constant,

c - speed of light,

m_n – mass of neutron.

Now the expression ***(b)*** for the Gravitational constant G can be used in formula ***(11)*** leading to final result ***(c)*** for the speed ς of Gravity propagation (considering average mass $m = m_n$)

$$\varsigma = \left(\frac{137^2}{2 \cdot \pi}\right)^{11} \cdot c \qquad (c)$$

where $\varsigma = 5.06634346(2) \cdot 10^{46}$ m/s is the speed of Gravity propagation,

c - speed of light.

Density of the Universe and its Transparency for the Light

Density of the Universe drops with time because mass is growing proportionally to the time as suggested in the article while volume increases as a cube of the time.

Light (electromagnetic waves) can propagate via matter only if density of the ether is equal or less than density of an atom. With higher matter's density electrons are "pressed" with protons into neutrons and electrons in this case do not oscillate (hence, do not emit or absorb light). With the matter's density lower than atomic one the light starts traveling. It is possible to calculate (using Smooth Bang approach) the moment of time when the Universe becomes transparent for the light.

The density of the matter in the Universe will be based on formulae ***(3)*** for its mass M vs. time t and its volume $Volume = (4\pi/3) \cdot L^3 = (4\pi/3) \cdot c^3 \cdot t^3$. Ratio of mass to volume gives next result: density of the Universe decreases as square of the time.

$$Density_{of_{Universe}} = \frac{M}{Volume} = \frac{3}{4\pi \cdot G \cdot t^2} \qquad (12)$$

Now, let's estimate the density of the hydrogen atom.

$$Density_{of_{atom}} = \frac{m_p}{V\_atom} = \frac{3 \cdot \alpha^3}{4\pi \cdot \mu^3} \cdot \frac{m_p^4 \cdot c^3}{\hbar^3} \qquad (13)$$

where

$V\_atom = (4\pi/3) \cdot r^3$ - volume of hydrogen atom,

$r = \hbar/(a \cdot m_e \cdot c) = \hbar \cdot \mu /(a \cdot m_p \cdot c)$ - radius of hydrogen atom,

m_e - mass of electron,

m_p - mass of proton,

$\mu = m_p / m_e$ - proton to electron mass ratio,

a - Fine Structure constant.

The combination of equations ***(12)*** and ***(13)*** allows a finding of the time needed for the density of the Universe to sufficiently drop to the level of transparency for the light

$$\boldsymbol{Time_{of_{transparency}} = \sqrt{\frac{\mu^3}{\alpha^3} \cdot \frac{\hbar^3}{G \cdot m_p^4 \cdot c^3}} = 927.65\ sec}$$

(14)

Surprisingly, this value is close (with 5% of the difference) to the experimental value for a mean life of a free neutron which is ***881.5 sec***. And it should be. The calculated time of transparency is the age of the Universe when pressure of the matter has diminished to the level when electrons become able to pop up from neutrons. The process can be referred to the development reversed to that of a neutron star formation in which electrons and protons are pressed by gravity together into neutrons.

It is also possible to get a match of the transparency age ***(14)*** to the exact value for the mean life of a free neutron with the next correctional expression ***(15)***:

$$\boldsymbol{927.65\ sec \cdot \left(1 - \frac{2}{3 \cdot \alpha \cdot \mu}\right) = 881.5\ sec} \qquad \textit{(15)}$$

Expression ***(15)*** is not derived in this article and has been given only for a reference to show how close theoretical result ***(14)*** and experimental data ***(15)*** are and how they are related.

Schwarzschild Radius of the Universe Gaining Mass

Let's apply expression ***(3)*** for the mass of the growing Universe to the expression for Schwarzschild radius of a black hole.

$$r_s = \frac{2 \cdot G \cdot M}{c^2} = 2 \cdot c \cdot t \qquad (16)$$

As expression ***(16)*** shows - the Schwarzschild radius of the Universe is 2 times bigger than the size of the Universe. Thus, Universe is compressed more than it is needed to be technically a black hole.

For a hypothetical outside observer the Universe is literally black because light from the Universe did not reach yet the observer assuming that somebody can exist outside the Universe.

The black hole title is applicable to the Universe as long as the outside observer stays beyond our Universe boundaries while Universe is growing in size. For us the Universe is not black and we can see it because we are inside. Light has already reached us.

Actually, for a regular black hole (smaller then Universe) it is easy to explain the gain of mass. The black hole simply absorbs a matter from space located outside of event horizon via accretion disk. It could be even the case that time inside of a black hole is progressing only if the black hole gains some mass

$$time_{inside\_of\_black\_hole} = \frac{G \cdot M}{c^3} \qquad (17)$$

Formula ***(17)*** is directly obtained from expression ***(3)***.

If the above consideration for a regular black hole is applied to the whole Universe then the proposed theory would not need the internal (inside the Universe) mechanism for particle creation from fluctuations of empty space. The Universe simply could absorb the outside (really dark) matter through its own event horizon to gain the mass and push the time forward.

Background Microwave Noise May Come from Newly Born Matter in the Universe and not from Big Bang

One of supposedly undeniable confirmation of the Big Bang occurrence is the cosmic microwave emission detected coming from the sky. The radiation's spectrum corresponds to a body with temperature ***2.725 K***. It is assumed by Big Bang theory supporters that the Universe has cooled down to that temperature from Big Bang's heat peak.

But what if this radiation comes from the matter which is constantly created with rate c^3/G?

To check this alternative let's calculate the temperature of the Universe using Stefan-Boltzmann formula linking temperature of the black body and energy of the light (all wave lengths) per unit of surface area and per unit of time emitted by that body

$$\frac{Energy\_of\_light}{unit\_of\_area \cdot unit\_of\_time} = \frac{\pi^2}{60} \cdot \frac{k^4}{c^2 \cdot \hbar^3} \cdot T^4 \qquad (18)$$

where k is the Boltzmann constant,

$\hbar$ - reduced Planck constant,

c - speed of light,

T - black body's temperature.

For the model of the Universe gaining mass previously depicted expression ***(d)*** estimates energy created per unit of time which is power c^5/G.

Only part of this energy $1/\mu$ goes to creation of electrons ($\mu = m_p / m_e$ - is proton to electron mass ratio) and on average only $\alpha \cdot (3/2) \cdot \pi$ part of electron's total energy is emitted as light (α - Fine Structure constant).

Thus, power of light from newly created matter equals $(3/2) \cdot \pi \cdot (c^5/G) \cdot (\alpha/\mu)$.

For the new mass distributed evenly through volume of the Universe the unit of surface area (including interior) is $4\pi \cdot c^2 \cdot t^2$ where t is the age of Universe.

Dividing power of the light by unit of area, next expression is obtained:

$$\frac{Energy\_of\_light}{unit\_of\_area \cdot unit\_of\_time} = \frac{3 \cdot \alpha}{8 \cdot \mu} \cdot \frac{c^3}{G} \cdot \frac{1}{t^2} \qquad (19)$$

A combination of expressions ***(18)*** and ***(19)*** produces next relationship between temperature and the age of the Universe:

$$T^4 = \frac{45}{2\pi^2} \cdot \frac{\alpha}{\mu} \cdot \frac{c^5 \cdot \hbar^3}{k^4 \cdot G} \cdot \frac{1}{t^2} \qquad (20)$$

For the most commonly used estimate for the age of 13.8 billion years the temperature of the Universe microwave radiation gets assessment ***2.736 K***, while for the age of 13.9 billion years the result ***(20)*** for the temperature is matching experimental one ***2.725 K.***

Conclusion

Unlike the Big Bang hypothesis with its burden of initial singularity the Smooth Bang theory asserts that the Universe started with mass 0 at time 0 and the Universe is constantly gaining mass since that start. Numerical results of the Smooth Bang theory are perfectly matching with observations in terms of mass, age and temperature of the Universe.

The suggested Smooth Bang theory allows deriving of the Gravitational Constant via other physical and mathematical values.

The proposed calculation yields an expression for the speed of Gravity propagation.

The age of transparency for the light calculated with the mass growing model for the Universe is equal to the mean life of free neutron.

Smooth Bang theory also states that Universe's microwave radiation comes from constantly ongoing mass creation process in the Universe.

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