Higgs boson and the Evolution of the Universe derived from Einstein's Equation with a fourdimensional Sphere as the Metric

by

Kay zum Felde

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Email: kay13lalaguna@gmail.com

Abstract

We critically review the inflational Big Bang theory, which is the favorite model of the origin of the Universe. It has been the result of this model, that the Universe is expanding by a huge boost. The Standard Model is proposing a homogenous isotropic initial state of the Universe. The inflation model is avoiding the flatness and the horizon problem. The horizon proplem has been identified as disconnected regions of particles, that were the result of a non-causal connected initiation of the Big Bang. The second problem is flatness.That means the Universe shows what is called the cosmological principle. It is looking everywhere the same. A problem is the critical mass. If the critical mass needed to become the known Universe's initial state is close to the actual mass density, it is not stable. We use Einstein's equation to formulate a new interpretation of the evolution of the Universe. We invent a szenario of the origin of the Universe based on Einstein's equation, by means of the metric being a four dimensional sphere.

1 Introduction

The Higgs boson [1] is believed to initiate the Universe. It is attaching mass to particles. It is a boson that has spin zero spin but is believed to have a certain mass..

According to the Big Bang theory, the origin of the Universe is believed to be a very hot and dense state resulted by a disturbance of the vaccum [2]. It has been followed by an accelerated expansion that some day has been deaccelerated. But it is believed today it is still expanding, but with a smaller acceleration. It is believed that the number of particles is constant.

The current theories are saying that there's a particle horizon, which means that the Universe is finite, since the space that particles have been travelled has been a limit

[3]. The problem is that regions aren‘t causally coupled together. How is this possible? The second problem is flatness [4]. The critical mass density, which is close to present mass density is making the Universe instable. It has been initiated the Universe by means of a singularity

The Big Bang is describing the Universe but it can only explain the Universe up to today‘s size. It cannot look beyond the border that is given by the size by distance measurements [4],

Some riddles are still existing and need to be solved. The abundance of light elements, the cosmic microwave background (CMB) radiation and large structure of the Universe. The cosmological principle says that the Universe is uniform, i.e., homogeneous and isotropic. The cosmological principle [5] is some principle which is the result of common sense. Moreover, another question is given by the existence of the so-called flatness problem. Closer to the truth It says that the Universe is highly fine tuned first discussed by [6,7]. This means a slightly different initial state is leading to a completely different present state. Density of matter and energy should not vary much in order to lead to a proved theory.

Elsewhere we have proposed that the Universe is of infinite space before time and we propose it lasts forever [8].

The Universe behaves different using different metrics. The metric is very important, since the stress-energy tensors are yielding different solutions to the problem if the metric is different. There’s no restriction of any system until the metric is delivering correct results of the measurement. To be precise: Popper said that theories should be trying to falsify them. We are trying to falsify the inflational theory and presenting a new theory.

We have proposed several new solutions, based on the four dimensional sphere being the metric, of Einstein’s equation elsewhere [9-11].

The solutions of Einstein’s equation need to be interpreted geometrically, since the whole theory is of geometrical origin. The basic result by a metric that is a fourdimensional sphere, is given by Dirac Fermions, photons and gravitons. We proposed [10], that geometrically a fourdimensional sphere is associated with the value $1/4\pi$.

Our evalutions have revealed that the number of both gravitons and photons in space not necessarily is the same.

2 Discussing Issues of Guth's Model of the Origin of the Universe

The Big Bang, i.e., the creation of the Universe and its early behavior is not fully explored. Some believe that physics laws were different during the first seconds. In this first seconds the Higgs broke the symmetry oft he vaccum. After breaking the symmetry, particles, i.e., fermions, photons, gravitons quarks and gluons came into existence.

The origin of the Universe is believed to be a very hot and dense disturbance of the vaccum [2]. Inflation is a process where space has been expanded by a huge boost in the early life of the Universe, i.e., from 10^{-36} to 10^{-32} seconds. Many physicists believe that space is an entity and there's an absence of empty space. Thus the metric in Einstein's equation is deformable and from this interpretation an entity. People are looking out for a field that would explain inflation. The existence of the Higgs boson, which has been experimentally proved and got the Nobel prize in 2013 [1,12-15]. The Higgs is responsible for the mass of the Fermions.

To the author, the origin of time and furthermore the very early time, according to the Big Bang theory appears like a switch of turning on light. It has been extremely hot.

The inflational Big Bang theory is describing the Universe but it can only explain the Universe up to today's size. It cannot look beyond the border that is given by the size by distance measurements [3] that are limited to the speed of light.

We are observing, that the Universe looks at a large scale everywhere the same. This is the Cosmological principle.

Guth [16] stressed the horizon problem, that says our observations are restricted by the speed of light. He has been estimated, that causally disconnected regions of at least 10^{83}[17,18]. The second problem is flatness [19]. The Big Bang is believed to emerge from a singularity, which is the opposite of isotropy and homogenity. The Universe has been shown a critical density, $0.1 < \Omega_p < 10$. Here the Ω_p denotes present density. It has been found, that it is proportional to the Hubble constant and it is close to the critial density

The only time scale that is devoted to radiation is the Planck time,

$$\frac{1}{M_p} = T_p = 5.4 \cdot 10^{-44} s. \qquad (1)$$

Interestingly Guth pointed out, that a closed Universe will reach ist maximum size on the order of this time scale. An open Universe will decreased until a value much less than the critical mass ρ_{cr}.

The second problem has been the flatness problem, noted by Dicke [7]. The Universe has been shown a critical density. The critical density is the border between an open and a closed Universe. It should be between,

$$0.1 < \Omega_p < 10, \qquad (2)$$

where

$$\Omega = \frac{\rho}{\rho_{cr}} = \left(\frac{8\pi}{3}\right) G\rho H^2 \qquad (3)$$

This system is unstable if $\Omega \approx 1$. The only time scale is the Plack time, i.e., $\frac{1}{m_p} = T_p = 5.4 \cdot 10^{-44} s$, which ist he shortest natural time scale yet known.

It has been measured that the Higgs has a lifetime of $\tau_{H_0} \sim 1.6 \cdot 10^{-22}$s [17]. The estimation by Higgs regarding the number of disconnected region is the inverse of τ_{H_0}. Interestingly later in this article, we come to the conclusion that the inverse of some physical quantity that is carrying physical measurements can be interpreted as a number that is essentially telling us about physics. F.e., the inverse of Planck time is interpreted as number of gravitons.

Guth pointed out, that it is neccessary to understand physics beyond the Planck time. Guth examined the Universe's initially but later than the Planck time.

He relied on the Friedmann-Lemaitre-Robertson-Walker metric [19-26]. He arrived at Einstein's equation for the Hubble constant.

$$H^2 + \frac{k}{R^2} = \frac{8\pi}{3} G\rho, \qquad (4)$$

where $H = \frac{\dot{R}}{R}$. R is the radius of the Universe, G is Einstein's gravitational constant. It is given by:

$$G \sim 6.6 \cdot 10^{-11} \frac{m^4}{kgs^2}. \qquad (5)$$

He introduced the equations of state of matter, by departing from a hot dense gas. He was rewriting Einstein's equations receiving an equation that described time evolution of the temperature of the Universe.

He has been discussed the flat and open Universe. To this point in time, one has believed that the Universe is flat or open. His calculations took into account a temperature of a photon gas being the reminiscence of the Big Bang that has been called Cosmic Microwave Background discovered by Penzias and Wilson [27]. The temperature of the CMB is measured to be $T_\nu \sim 2.75K$.

Guth's first result ist hat the flatness problem disappears if the entropy up to the present is growing by a factor $Z^3 \sim 10^{81}$. The horizon problem disappears if the entropy is growing to a comparable factor. Both are relying on the initial value of the Universe. Guth assumed that the Universe can not be adiabatic. This is a result of his Sec. II. He concluded, that a value of Z that is large enough let the system become causally correct, i.e., $Z \sim 10^{27.}$. Guth assumed that a thermodynamically first order transition has been taking place. The Universe was supercooling. This supercooling should have been taken place down to some temperature T_s many orders below T_c . Thus there was existing a two phase system of two thermodynamically different states some time in the past by releasing all its latent heat. Guth pointed out that there was taking place a reheating until,

$T_v \sim T_c$. (6)

Guth concluded that the entropy density became more or less of order:

$\left(\frac{T_v}{T_c}\right)^3$. (7)

The theory has been named Inflationary by Guth because the system has undergone initially a huge boost. The boost is unbelievable large. But a new result by Guth is that his Universe is not boosted in space but in temperature. The Universe would be possible, since it becomes unity at:

$T_0 \sim 10^{17} GeV$. (8)

The supercooling should be of magnitude of 28 or more orders. This process is believed to have been taken place below the critical temperature. A very important point ist hat the number of particles shouldn't be constant. This conclusion by Guth is too a key point within our theory.

Einstein's equation with a cosmological constant, denoted conventionally denoted by Λ. It is indicating the energy density of the vaccum. Guth dismissed it, since is negigible. Interestingly the modifications he made to the his Einstein equation, i.e., (3.8) in his paper he ruled out a closed Universe.

His formula for temperature is resulting to:

$T(t) \sim const. e^{-\chi t},\ \chi^2 = \frac{8\pi}{3} G\rho_0$. (9)

He was assuming that $RT = const$. He arrived at:

$R(t) = const. e^{\chi t}$. (10)

Thus the Universe is according to Guth's work exponentially expanding. The Universe is leading to a vaccum state of density ρ_0. And Hubble's constant is just:

$H = \frac{\dot{R}}{R} = \chi$. (11)

Besides that the false vaccum is Lorentz invariant, i.e., $T_{\mu\nu} = \rho_0 g_{\mu\nu}$. And the pressure is negative, $p = -\rho_0$. A negative pressure would result in the conservation of energy. He said that negative pressure is the driving force of expansion.

3 Higgs Theory applied to Einstein's Equation based on four dimensional Sphere being the Metric

We have proposed several solutions of Einstein's equation elsewhere [9-11]. Einstein' equation has been enriched physics with many new theories and solutions, based on a metric, being a fourdimensional sphere.

The solutions of Einstein's equation need to be interpreted geometrically, since the whole theory is of geometrical origin. The basic result by a metric that is a fourdimensional sphere, is given by Dirac Fermions, photons and gravitons. We proposed [10], that geometrically a fourdimensional sphere is associated with the value 1/4π.

We have been evaluating different systems with the same metric, which is,

$x = cos\varphi cos\psi cos\vartheta,$ (12a)
$y = cos\varphi cos\psi sin\vartheta,$ (12b)
$z = cos\varphi sin\psi,$ (12c)
$ct = sin\vartheta,$ (12d)

i.e., that of a four dimensional sphere. The ranges of the three angles are

$\varphi = [0, \pi],$ (13a)
$\psi = [0, \pi],$ (13b)
$\vartheta = [0, 2\pi].$ (13c)

The value of a spin 2 messenger particle like the graviton is geometrically given by $8\boldsymbol{\pi}$. We have proposed that $8\boldsymbol{\pi} = \mathbf{2} \cdot \mathbf{4}\boldsymbol{\pi}$ is the geometrical interpretation of the graviton [10]. According to Dirac [27] $4\boldsymbol{\pi}$ is the geometrical value that is interpreted as a fermion with spin one half. Thus $8\boldsymbol{\pi}$ is logically interpreted as the geometrical value of the spin 2, i.e., the graviton.

We have been proposed [10] that a graviton is carrying temperature. Furthermore, it is geometrically an axial vector whose direction is showing up as an arrow in the center of a plane where the fourdimensional sphere is circling the axial vector around with distance to the center.

Gravitation waves, i.e., gravitons carry temperature. The polarisation of the CMB is proposed to be a result of massive quadropoles Quadropoles, f.e., emits thermal radiation in a continuous spectrum according to its temperature. Thermal radiation is the emission of electromagnetic waves from all matter that has a temperature greater than absolute zero.In our theory, temperature is a result of gravitons that are moving around [11]. According to black body radiation theory, photons need to be present.

Einstein's equation is the result of a geometrical evaluation of the Universe. It is both geometrical and relativistic. Einstein has introduced the idea of a

metric, which determines solutions of physical problems and is the basis „space“of physics taking place. .

A short notice of other results based on the four dimensional sphere is taken here. We have found alternative values for the Boltzmann constant k_B and the Planck constant ħ [9,10]. receiving new solutions of the Einstein equation. We have found new interpretations of temperature and a new theory of sponta-noeus emission [9,10]. We have found a new way to establish the area of the event horizon being the entropy of a Black Hole. We have raised an idea that the discrepancy of light emissions and gravitation in Dark Matter is natural, since it is made of mass and charge that have the same origin, i.e., Dirac fermions [3-5].

Our evalutions have revealed that the number of both gravitons and photons aren't not necessarily is the same.

We construct Einstein's equation, i.e.,

$$G_{\mu\nu} = 8\pi T_{\mu\nu}, \qquad (14)$$

for our system, which is a system of two fermions, f.e., electrons and protons, photons and gravitons, which naturally result technically in a particle without spin and mass, the Higgs boson, i.e.,H_0. By (12a-d) Einstein's equation is, f.e., resulting [9-11] in:

$$1 = m_0 + \hbar\omega - kT \qquad (15)$$

Thus,

$$H_0 = p + e^- - \gamma - \nu \qquad (16)$$

with ***γ*** is denoting gravitons and ***ν*** photons. We interprete (16) as the reaction which is the basis for the creation of atoms during the Big Bang. In [8] we were making the attempt of an alternative theory of the Universe where the Universe is infinite and initially empty. Our theorem is based on an observation. Suppose that randomly light is arriving on Earth, because the speed of light is limited. Since that time is moving on more and more light should be reaching Earth. A consequence of this fact would be that the sky would become brighter any time light is arriving Earth. This problem can be avoided, if the size oft he Universe is infinite large.

The begin of the Universe has been happened by means of a spontaneous process. We are now going to be more specific. (16) is the result of such a process, even it cannot explain the mechanism, we are going to believe that it is correct.

We argued furthermore [8], that the number of particles in the Universe is not constant. The process (16) is the origin of new particles as proposed by Higgs. Why should it stop?

In [8] we encouraged experimentalists to invent experiments to prove or falsify our theory. A simple experiment is a container filled up with water, where we sit and wait until (16) happens.

Another riddle is, that theoretically systems in the Universe can expand, even when free energy $dF = 0$ [11]. We can interprete (16) in two ways: The Higgs is emitting a graviton resulting into two fermions with opposite spin or a graviton is absorbed by the vaccum while the creation of the two fermions takes place.

In 1964 Peter Higgs [2] proposed a scalar massive boson as origin of the Universe. The Higgs is going to break the symmetry of the Universe by assigning mass and spin on Dirac Fermions.

The Higgs has full symmetry oft he four dimensional sphere, i.e., the four dimensional rotation group. This is making it a candidate fort he origin of the Universe. It is just possessing mass.

The protons, electrons carry mass and spin. The photons and gravitons carry spin. We are concluding that the symmetry that the symmetry breaking mechanism is transferring mass and spin to protons and electrons. And it is carrying spin to photons and gravitons. This happens while the Higgs is decaying. Symmetry breaking is a result, that the new particles aren't carry the full symmetry of their origin particle.

We assume that the vaccum is something invisible and it is moreover a container of infinite number filled with fermions and bosons. This is the so-called Dirac sea [28].

We can observe the reaction of the vaccum, since a photon can be decayed into a positron and an electron at energy of 511 MeV. This process is spontaneous. That means we don't know the process behind this reaction. It just happens.

The Higgs decay is a spontaneous mechanism. The Higgs' boson carries a mass of:

$$H_0 = 5 \cdot 10^{-7} kg \qquad (17)$$

Here we are making the assumption, that the Higgs is initially not moving, not even relativistically. Thus:

$$m_0^2 c^2 = \frac{E}{c^2} - \|p\| \qquad (18)$$

has been reduced by $p = 0, c = 1$. We receive:

$$m_0 = E.$$

It should be noted, that the mass of the Higgs boson is not $E = 125.75 \frac{GeV}{c^2}$, but just

$$E = m_0 = 125.75\, GeV = 5 \cdot 10^{-7} kg. \qquad (19)$$

Proposition 1:

We are proposing, that our form of Einstein's equation is resulting, by using a four dimensional sphere as the metric, in an equation where all quantities are numerical

numbers . F.e., a quantity, that enters the szenario, has mass, and is intrinsically carring the number of that quantity. It is also possible that the lifetime of a particle is too intrinsically carrying the number of that quantity. This is done by inverting mass or lifetime. F.e., if we invert the mass of a proton, i.e., $m_p = 1.6 \cdot 10^{-27} kg$ *we are receiving the characteristically number of protons per one kg, i.e.,*

$$N_p = 5 \cdot 10^{26} \frac{1}{kg}. \qquad (20)$$

Moreover we are concluding, and will show, that any physical property of a particle is expressed by its characteristically physical unit. It will show up, that the inverse of a physical quantity, whose unit is, f.e., kg^{-1} *will be interpreted as the number of particles per kg. We will show, that, f.e., (20) is expressing physics while appearing in an equation that is connecting numbers like that. We are able mathematically combine numbers in an equation with different physical units because physics is done by the numerical numbers.. Those units are* s^{-1}, kg^{-1}, m^{-1}*. The numbers are doing physics since they all are given, f.e., as number of photons per unit size of time.*

Moreover, f.e., in (20) we are observing a numerical number which is given by unit size, i.e., 1 kilogram. Thus equations where all quantities have being of the form: Numerical number per unit of size, is revealing the correct result. Thus it is possible to put numbers in relation by an equation. Effectively the equation is simply algebraic.

With our metric, Einstein's equation is thus an equation that show relations between quantities that are expressed by their numerical numbers.

Like in [10-11] we are going to write down a thermodynamic equation which is equivalent to Einstein's equation if we use the metric being a fourdimensional sphere.

Fact is, that the Higgs has mass, i.e., $m_{H_0} = 5 \cdot 10^{-7} kg$. Physicists are trying to get as close as possible to the initial tiny peak that has been leading to the evolution of the Universe. The initial state of the Universe has been the initialization of time by the Planck time, i.e., $\tau = 5.4 \cdot 10^{-44}$ s. If we invert this quantity we receive the number of photons which has been moving around, i.e.,:

$$N(\nu) = 2 \cdot 10^{43}, \qquad (21)$$

Thermodynamically Einstein's equation for our idea of the evolution of the Universe is given by

$$dU = TdS + \mu_p dN_p + \mu_{e^-} dN_{e^-} - \boldsymbol{\nu}\text{-}\boldsymbol{\gamma}\text{-pdV}. \qquad (22)$$

While assuming that the chemical potentials are built by the number of protons and electrons devided by Avogadros number, thus $\mathrm{N_p} \sim 10^{26}$ and $\mathrm{N_{e^-}} \sim 10^{30}$ we arrive at

$$dU = TdS + 10^2 + 10^5 - 10^{43} - 10^{35} - pdV. \qquad (23)$$

Here's appearing a mistake. We have proposed, that gravitons are carrying temperature [10,11]. A graviton is a quantized ripple of space. Thus its unit is meter. Temperature is assumed to be a ripple of unit meter. Since gravitons are carrying temperature, there should be given some characteristic value for temperature T. It is identified by the inverse of the Planck length. The Planck length is the distance that a photon is travelling during the Planck time. A quantity that is showing the characteristic of length is associated by temperature since the length scale changes. Thus it is too a relativistic entity. The Planck length is the unit that is conserved, since Planck time is another unit that expresses the unit of time. We are yet not able to view closer to the truth of Planck length and Planck time.

Now, we are applying the Coulomb force, which is given by the well known formula,

$$F_c = \frac{1}{4\pi\epsilon_0}\frac{\mu_p \cdot \mu_{e^-}}{r^2}, \qquad (24)$$

With $\epsilon_0 = {}^{1}\!/_{4\pi\frac{s^2}{kgm^4}}, r = 1$, we receive:

$$F_{N=} G^{-1}F_c, \qquad (25)$$

where it is concluded that the number of protons that are interacting with electrons must be identical to form an atom. Thus in our system two different forces are appearing that are differentiated by the Newton constant. Since $G \cdot \epsilon_0 = [kg^{-2}]$, in our formula (25) F_c is dealing of mass instead of charge.

Now we are going to solve (13) for different radii. We make a plot of several values. But first of all we identify $T = 10^{35}\frac{1}{m}$. We are going to write down explicitly the first value for entropy by identifying $r = 10^{-15}m,$ which is actually known being the radius of a kernel. Thus it follows that $T = 10^{35}\frac{1}{m}$

Moreover:

$$dU = 10^{35}dS + 10^2 + 10^5 - 10^{43} - 1.001 \cdot 10^5. \qquad (26)$$

Here $pdV = 1.001 \cdot 10^{20} \cdot 10^{-15}$. To receive equilibrium, we set $dU = 0$ and we get:

$$dS = 10^8 m. \qquad (27)$$

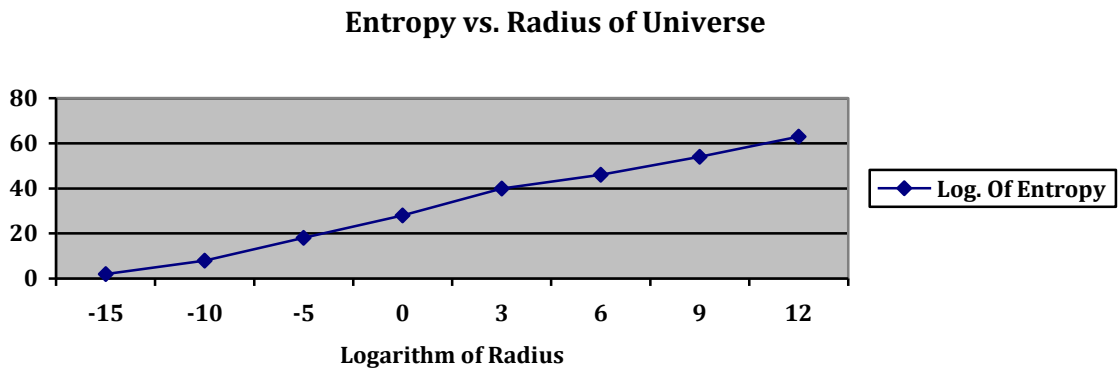

Fig. 1: Entropy vs. Radius of the Universe

Fig. 1 is showing a constant increasement of the entropy by the increasement of the size of the Universe. Moreover (26) is revealing that the temperature is falling off from a large initial value $T = 10^{35}\frac{1}{m}$ at $r = 10^{-15}m$ to $T = 2.75\frac{1}{m}$ at $r \sim 10^{8}m$.

In 1965, Penzias and Wilson have been measured something that they didn't understand. It has been called Cosmic Microwave Background (CMB) [28]. Its temperature is measured to be:

$$T = 2.75K. \qquad (28)$$

Its energy is computed to be:

$$E = k_B T \sim 4 \cdot 10^{-23}J \sim 6 \cdot 10^{-4}eV. \qquad (29)$$

Our system explains the CMB as follows: The initial number of protons and electrons aren't the same. Moreover there are moving photons around. We are trying to solve the puzzle. Every Higgs is contributing 10^4 additional electrons to the Universe and moreover 10^{24} photons. In our model, photons aren't carrying temperature.

Temperature is a result of graviton exchange. Thus the CMB needs to consist of gravitons.

We use equation (26), by inserting $T = 2.75\,K$ instead of $T = 10^{35}K$. The result is:

$$S \sim 10^{43}. \qquad (30)$$

How would we interpret this? A few gravitons are moving around and they seem to be responsible for the huge number of photons available.

If we take this result seriously, the number of photons is the product of temperature and change of entropy in energy equilibrium.

$$TdS = \frac{change\ of\ energy}{change\ of\ distance} real\ distance. \quad (31)$$

The change of energy per distance is the effect of a graviton. It is been exchanged by matter. A graviton is emitted from one fermion and is travelling some distance and is going to be absorbed by another fermion. This is accounted by the term: change of energy by change of distance. The change of distance is the unit change of distance. It is called temperature. The real distance is the distance of two fermions. (31) is resulting into the number of photons, i.e., $N_\nu \sim 10^{43}$.

We are concluding that the reminiscence of the Big Bang is a soup of electrons, a huge number of light elements a huge number of photons, that are just the product of gravitons and a huge change of entropy.

The polarisation of the CMB is proposed to be a result of massive quadropoles

The number of particles of the CMB is just following from,

$$E = k_B T = 1.38 \cdot 10^{-23} \cdot 2.75\, J. \quad (32)$$

Inverting (32) is yielding to the number of particles per unit size of joule, i.e.: $N \sim 2.6 \cdot 10^{22}$.

In order to compute the number of free electrons, that are filling up the CMB today, we add up to all electrons up to today:

$$N_{e^-} \sim 10^4 \cdot 3600 \cdot 24 \cdot 365.25 \cdot 125.75 \cdot 10^9 \sim 4 \cdot 10^{22} \quad (33)$$

This is comparable to (32). Interestingly, the temperature is not appearing in (33). Should we then take (33) seriously? Is this a coexistence? The physical unit of N_{e^-} is Hz^{-1}. Thus

$$E \sim 2.5 \cdot 10^{-23} Hz. \quad (34)$$

Comparing this with our proposition, we cannot multiply (33) with a quantity of unit meter and invert it.

For now, we, take (33) and (34) seriously.

4 Discussion

The metric is responsible for the character of the solution. The metric is restricting the geometric form of the solutions. Einstein's equation can reveal solutions that have theoretically the same stress energy tensor but different metrics.

Einstein's equation determines solutions depending on the given metric, that is a result of the energy stress tensor. We found several solutions for four dimensional metric elsewhere [9-11].

The Higgs is proposed to put mass and moreover spin on Dirac fermions. We propose a new interpretation of the Higgs boson. Following [8], we believe that the Universe is of infinite size. Time has had been started by spontaneously creating a scalar boson, the Higgs proposed by Peter Higgs in 1964 and others [1,12-14]. The Higgs is as of our idea decaying into two Dirac Fermions and and a graviton. During the first time, which is lifetime of the Higgs $\tau \sim 10^{-22}$, i.e., [15] it should be possible, that atoms has been created.

In the past many new results were discovered by looking for symmetries and for mechanisms or entities those have been broken symmetry. The Higgs broke the symmetry oft he vaccum, where as a by pass fermions were entering the Universe. Thus the close interpretation is that the Higgs puts mass into existence.

Herein the Higgs is massive and does not carry spin. The result are two fermions and one graviton, where the Dirac fermions carry mass and spin but the graviton only spin [9-10].

Thus the Higgs is the origin of mass and spin, different from zero. We believe that this statement is more adequate.

Thus the Higgs is the optimal entity to produce particles.

We are believing that randomly, both in space and time, Higgs bosons are entering the Universe and they are decaying within $\tau \sim 10^{-22}s$. This explains the non causally horizon problem. For us, the flatness problem is the tiny initial value problem. How is it possible that this tiny disturbance causes a singularity.

We would like to propose the following:

Proposition 2:

The singularity is another term to say: A spontaneous process has been taking place. The Higgs has a lifetime of $\tau \sim 10^{-22}s$. Any number comparable to this can be called "tiny". Thus we need to find out what physics at energies larger than the Higgs are going to tell us.

The CMB has been shown anisotropies. Those anisotrophies are the result of the reminiscence of electrons and photons. Moreover this reminiscence is showing

temperature and thus gravitons and is leading to the expansion of entropy, which hast he physical unit of length.

The main difference between Guth's theory and ours is the evolution of the entropy, In our theory the first values for radius are showing an evolution of the entropy by a square.

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