

# The Big Bang as the Creative Force of the Creation of the Universe

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**How to cite this paper:** Khugaev, A. and Bibaeva, E. (2024) The Big Bang as the Creative Force of the Creation of the Universe. *Journal of Applied Mathematics and Physics*, 12, 3281-3306.

<https://doi.org/10.4236/jamp.2024.1210195>

**Received:** August 29, 2024

**Accepted:** October 7, 2024

**Published:** October 10, 2024

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## Abstract

The paper considers the mechanism of the Big Bang energy influence on the creation of space-time fields of four structures of the Universe from the 1st type Ether (the Main Field and three spheres of the Relic). It explains how the Big Bang energy leads to the processes of “melting” in these structures, generating emergent properties that are different from their properties before the Big Bang. The key role of the Big Bang in completing the process of formation of 70% of DE is emphasized. It is shown that the Big Bang preceded the emergence of the furcation point, which chose several directions for the creation of cosmic matter—it was the combined efforts of these directions that created the visible worlds. The principle of dynamic equilibrium is considered the main criterion of the space-time field, in contrast to other physical fields, which is a necessary prerequisite for the quantization of the gravitational field. A spin particle is introduced, capable of emitting special particles—spitons, the characteristics of which are associated with the topology of the Mobius strip and determine the spinor properties of gravitational fields. The mechanism of interaction of particles of the 2nd type of Ether with the fields of space-time is described, allowing the creation of matter first and then the materiality of visible worlds. At the same time, the role of the “matter-negotiator” in the creation process of visible worlds of the Universe is especially highlighted. Since the new properties of gravitational fields go beyond Einstein’s standard theory of gravity, it is proposed to build a new theory of space-time that generalizes it and has a clear geometric interpretation. The proposed theory is based on the action built on a full set of invariants of the Ricci tensor. Within the framework of the Poincaré theory, the classification of furcation points is considered. The processes at the furcation point are described by the Gauss-Laplace curve, for which the principle of conservation of probability density is introduced when considering the transition at the furcation point to four different directions of development.

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## Keywords

Big Bang, Furcation Point, Space-Time Criterion, Mobius Strip, Spin-Particle, Resonance of Place, Matter-Negotiator

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## 1. Introduction

There are problems, the consideration of which seems to be extremely important for understanding all the processes that have occurred over the 13.8 billion years of the Universe's existence. "Space-time", "furcation territory", and the role of the Big Bang in the emergence of these structures are just some of them.

It is also obvious that a serious problem still remains: the particle ("Spin") responsible for the "Eternal Motion" in the Universe, prompting matter to move in cosmic spaces, enter into transformation processes and create worlds.

When we use the term "space-time", we should be very critical of it. What do we know today about this cosmic structure? What meaning do we attach to this term? Is "space-time" the only one, *i.e.*, the space common to all worlds in the Universe? And if "no", then how many are there? How do these specific "spaces" differ from each other? What elementary particles do they consist of? How do they affect the objects functioning in their environment? And why is the term "time" mentioned in the term "space-time"? Is there a criterion that the concept of "space-time" must meet? What prevents other fields from also being considered "space-time"? We tried to answer these posed questions in Section 2 of this article.

According to our concept [1]-[7], literally everything that modern science calls the visible Universe is helped to "manifest" properly by the environment, the "place" [2], that is, "space-time", in which the construction of objects of different worlds of the Universe was carried out at the early stage of its evolution (and is carried out today)... Studying the problem of "space-time", we proceeded from the principle that "time" is not absolute. What is called "time" is, in fact, "eternity", expressed quantitatively. Only "eternity" can be considered the real basis of all things, and this means that "space-time" can only be considered the territory of the Universe, in which all points are connected not by "time", but by the intensity of the energy of "eternal motion" filling them. "The time of eternity" is the "space-time" of the field in which the matter of a given world is located, and each "space" has its own "time of eternity".

This is a conceptually important view on the problem of understanding the physical essence of time since the concept of movement is primary, and not time, as is usually believed. In this sense, the impossibility of destroying movement and its primacy leads us to an understanding of the existence of "eternal time" associated with this movement. In this case, we are talking about the highest forms of movement that are characteristic of the higher worlds. By the movement of any space, we mean the mapping of this space into itself. Such a definition frees us

from the need to introduce the usual definition of time as a measure of changing something.

We would also like to note that the characteristics of the gravitational field are the components of the metric tensor  $g_{\mu\nu}$ , which determine the interval of the space-time in question:

$$ds^2 = g_{\mu\nu} dx^\mu dx^\nu = g_{00} c^2 dt^2 - 2c g_{0\nu} dt dx^\nu - g_{ij} dx^i dx^j, \quad (1)$$

here, the Greek indices run through the values  $\{0, 1, 2, 3\}$ , and  $i, j = \{1, 2, 3\}$ . Given that the components of the metric tensor satisfy Einstein's equations:

$$R_{\mu\nu} - \frac{1}{2} R \cdot g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}, \quad (2)$$

where the energy-momentum tensor  $T_{\mu\nu} = (p + \varepsilon) u_\mu u_\nu - p g_{\mu\nu}$ , on the right side of Equations (2), is determined by the properties of matter:  $p$ -pressure,  $\varepsilon$ -energy density,  $u_\mu$  and  $u_\nu$  are components of the 4 velocities. Ultimately, the tensor determines the properties of the gravitational field. This approach allowed us to:

- a) determine which 4 fields can be called "space-time" and which elementary particles of the Ether of the 1st type form them;
- b) imagine the "mechanism" in the form of a code embedded in the fundamental particles of the Ether of the 2nd type for interaction with the fields of "space-time";
- c) name the criterion under which the field of "space-time" can correspond to this status and explain the reason why it seems correct to us;
- d) show which property does not allow other fields to be considered "space-time", etc.

Section 3 shows how a number of cosmological problems can be solved if:

- a) we understand the special role of the Big Bang in the construction of the invisible fields of the "space-time" of the Universe. This was the period of creation, when the monstrous temperatures of the Big Bang not only became the force that fused together the matter of the "space-time" fields, but also armed them with completely new properties, absolutely necessary for the full and eternal functioning of the Universe.
- b) we clarify the purpose of creating the Double "small field" [7], that is, the "furcation territory", thanks to which the 4 main directions of the creation of matter were chosen, by the combined efforts of which the entire materiality of the visible worlds were created. This was not a linear, but a very complex process generated by super-powerful particles, identical in shape ("Mobius strip" cut along the sheet), and the intensity of the emitted energy to the First "rings" of the Prime Mover of the Universe. Here, in Section 3, a detailed description of the properties of each "ring" of the Borromeon  $O_{Sp}$ -space [3] [4] is given, and it is shown why we believe that it was the form of the First "-gravitational" "ring" in the form of a "Mobius Strip" that could allow all 4 rings (one of which was the formed "Spin" ring) to look like a Single Whole. In this case, we managed to prove that the change in the shape of the "Mobius Strip" as a "Spin" included in the "00" particles has a

much greater intensity than the shape of the “Möbius Strip” as a “spin” rotating around the gravitational “body” of the “0” particle of the Higher Energy (DE).

In Section 4, we study the model of transformation of the Gauss-Laplace curve, which characterizes the evolution of dynamic processes in the Universe from the Big Bang to the furcation point. At the furcation point, the original process disintegrates into four parallel processes with the preservation of the probability density. The principles of classification of furcation points are considered within the framework of the Poincaré theory, as well as the physical consequences associated with the dynamics of changes in the processes of evolution.

In Section 5, we briefly summarized the results obtained.

## 2. “Dynamic Equilibrium” as the Main Feature of “Space-Time”

The term “space-time” is an analogue of the term “condition of place”, we have mentioned more than once when talking about the reason for the transformation of the energies of the triads of Ether of the 2nd type into the materiality of the Higher, Middle or Lower worlds [2]-[7]. Science today does not have an exact understanding of the essence of this most important term, although it is mentioned everywhere in scientific research. It is necessary to define the concept of “field” as “space-time” for two reasons: firstly, because “space-time” plays a key role in the process of creation of all types of matter from which the visible worlds of the Universe are built; secondly, because a number of other structures created in the process of self-deployment of the Universe [4], which are also fields, but play a completely different role in the functioning of the Universe, can be mistakenly attributed to “space-time”. How does the “condition of place” influence the creation of the materiality of different worlds of the Universe? To answer the question posed, we will try to understand the operation of a special mechanism, initially in the form of a code [3], embedded in each fundamental particle.

1) In our articles [3]-[7], we have repeatedly said that for the formation of triads of one or another type of matter and the subsequent creation of the corresponding materiality of 3 visible worlds from this matter, the decisive role was played (and is played):

a) the principle of “triad democracy” [1], which created the necessary prerequisites for the exchange of particles with their own qualities within the framework of the so-called “seeds of creation” (“+”, “0”, “-”), with the main goal of turning them into fundamental cosmic particles;

b) and the so-called “condition of place” [2]—(“0”), (“+”) or (“-”) the Sphere of the Relic (it is also the condition of “space-time”), which allows us to isolate a leader from 3 particles of the 2nd type of Ether for the purpose of the subsequent formation of 6 types of DM [6].

But how could the disparate particles of the 2nd type Ether “3”, “2”, “1”, having found themselves, for example, in the space of the “0”-Sphere, understand what kind of matter triads they needed to line up in? Or, in other words, how did the particles “understand” which of them in a given territory was supposed to lead the

process of creating matter (that is, uniting into the corresponding triads based on the process of energy transformation), and then creating materiality (that is, building certain world objects with the help of matter triads)? [2]. How did they determine which of them would become the leader, knowing the goals and methods of fulfilling the task of building objects of a given world? [3] [4]. To answer this question, the cosmic “law of resonance” (or otherwise—the law “Like attracts like”) was included in the work of the 2nd type Ether particles.

Thus, the fundamental particle “3” (the second generation of “0”-particles of the DE) acquires a leading role in the field of “space-time” consisting of “0”-particles (“0”-Sphere of the Relic), that is, in the Higher visible world. Having headed the particles of the Ether of the 2nd type (“3”, “2”, “1”), under its leadership, it creates in this “place” 2 types of DM—integrating DM 3(1,2) and 3(2,1), the main task of which is the process of formation of different degrees of gluing and deformation of cosmic structures in the worlds of the Universe.

The fundamental particle “1” (the second generation of “+”-particles of DE) turns into the leader of the process in the territory of “space-time” consisting of “+”-particles (“+”-Sphere of the Relic), where the energy of the “force of life and creativity” (Middle world) is especially in demand. Having headed the particles of the Ether of the 2nd type (“3”, “2”, “1”), under its leadership, it creates 2 other types of DM—creative DM 1(3,2), 1(2,3). The properties of this matter are especially in demand in the worlds of Giant stars, where more often than, for example, in the Lower world (such as the world of our Solar system), there are processes of transformation of stars into objects of a completely different type and quality, and the formation or modification of Black Holes and many other phenomena that require wise and timely use of the properties of the “force of life and creativity”.

The fundamental particle “2” (the second generation of “-”-particles of DE) leads the process of creation where the power of manifestation of “reason and understanding” is required (the Lower World, the field of “space-time” consisting of “-”-particles). Having led the particles of the Ether of the 2nd type (“3”, “2”, “1”), under its leadership, it creates 2 more types of DM—intelligent DM 2(3,1), 2(1,3), and after that—Yellow Dwarfs, surrounding them (as in the case of our Solar system) with gaseous and rocky planets.

2) But how did the properties of the other 2 particles—“+”(or “1”-particles), “-”(or “2”-particles)—change in the triads of matter of each world under construction? How did they know that they needed to adjust to the vibrations, to the rhythm emanating from the leader particle, and therefore also change the strength of the basic, fundamental vibrations obtained during the formation of the particles of the 2nd type of Ether? What could allow the triad as a whole to transform into another type of matter, and then, accordingly, into materiality of a completely different level? If, for example, we speak specifically about the construction of the visible Upper World: who is the “negotiator” in the particles “1” and “2” who could understand the “language” of the leader—the “3”-particle, conveying his command without distortion to the particles “1”—“Great Life Force” and “2”—

“Omnipresent Reason”, and most importantly, could be correctly understood by them? Such matter in these 2 particles, capable of “cooperating” with the “-gravitational” property contained in the “3”-particle-leader, perfectly “understanding” its language, is the related “motionally-gravitational” matter, present in each “1” and “2”-particle, acquired during the “exchange” in the “seeds of creation”. Only with the help of such a “negotiator” in each fundamental particle could the energies of “1” and “2” be brought to a “common denominator”, corresponding to the requirements of “this or that space-time”. Only with the help of such a “negotiator” could the following process of energy transformation be carried out with the purpose of forming the corresponding type of DM.

In our opinion, the Universe has invented a wise mechanism that operates in the visible world. In general, its action is as follows: the “spin” of one of the 3 fundamental particles of the 2nd type Ether, having discovered that its vibrations resonate with the vibrations of a given “space-time” (*i.e.*, the Higher, Middle or Lower world), assumes the responsibilities of the leader particle (“to accept responsibilities” means to become obedient to the switched-on leader code with the corresponding “creation program”). Direct communication with the other 2 fundamental particles of the triad and all types of commands are transmitted only with the help of vibrations from the “motionally-gravitational” part of the fundamental leader particle to the related “motionally-gravitational” parts that are part of the other 2 fundamental particles. In other words, the “negotiators” for the implementation of any transformations in the structures of fundamental particles are the “motionally-gravitational” parts that are part of them.

The vibrations of the leader particle become a signal for bringing the vibration of spins and the related gravitational properties in 2 other fundamental particles into resonance with it. The latter read the signal and, obeying the command, bring the vibration of their own spins and gravitational properties to the level of the leader’s vibrations. At the same time, the forces and capabilities of the main natural properties of these 2 particles are rebuilt under the changed dynamics of the “motionally-gravitational” parts (after all, in each visible world, they manifest themselves differently).

Thus, interacting with each other, the fundamental particles created 6 types of matter and all the materiality of the visible worlds, the 4 directions of which will be discussed in next Section 5.

Is there a criterion that a field must meet in order to obtain the status of “space-time” of one or another world in the Universe? “To be in equilibrium means to be dynamic.” This is about the Universe. The deep meaning hidden in the expression “dynamic equilibrium” is the main criterion that the “space-time” of one or another world in the Universe must meet. “Eternal, unchanging, dynamic equilibrium and the time associated with it.” This, in our opinion, is more accurate. Why is this criterion correct? The fact is that any dynamic equilibrium necessarily requires the existence of a periodic dynamic process in such a system. A periodic process sets a measure for time, the reciprocal of which is frequency or rhythm.

In a system that does not have dynamic equilibrium, there is no periodic process, therefore, it is impossible to introduce the concept of rhythm.

Dynamic equilibrium is thus a necessary criterion for a “field” to have periodic processes that would characterize rhythm. Rhythm can be introduced as the time during which an oscillation occurs—without the existence of an oscillation, it is impossible to introduce the concept of rhythm, and if there is no rhythm, then there is no unit of measurement (measure) that can be equivalent to the unit of measurement of time. Thus, we see that the basis for determining time is not simply movement, but periodic movement that determines the unit of measurement of time. According to our concept, there are also 4 “fields-spaces”, as well as worlds of the Universe that meet this requirement [6] [7]. It is important to note that all 4 “spaces-times” are formed exclusively from the DE of the Universe.

2.1) The main “space-time” (also known as the “foundation” of the “building” of the Universe [6]) is the “main” field of the Universe itself [7], formed from “0”-“strings” united with the double shell of the Universe “+” “-”;

2.2) Three other “space-times” (also known as the 3 “inter-floor ceilings” of the “building” of the Universe [6]) are the three fundamental fields of the 3 visible worlds—the Higher, Middle and Lower:

a) “space-time” of the Upper Sphere of the Relic (“0”), that is, the Higher world of the Rays of Creation—the world of “ITM Streams” (also known as the “small” “double field” of “0, 0”-particles of the “main” field of the Universe and the Upper Sphere of the Relic [7]);

b) “space-time” of the Middle Sphere of the Relic (“+”), that is, the Middle world—the world of “Giant Stars”;

c) and “space-time” of the Lower Sphere of the Relic (“-”), that is, the Lower world—the world of “Yellow Dwarfs”.

The last two “spaces-times” acquired “motionally-gravitational” and “temporal” parameters when three Spheres of the Relic (“0”), (“+”) and (“-”) came into contact and a triadic Unity was formed as a special material structure with colossal “motionally-gravitational” properties. At the same time, in all 4 “spaces”, a different level of “eternal motion” arose and different times of “eternity” were formed.

3) But what prevents other fields of the Universe from also being considered “space-time” fields? Here we mean fields filled with Ether of types 1 and 2; fields of 6 types of Dark matter—ITM 3(1,2), 3(2,1); TTM 1(3,2), 1(2,3); RTM 2(3,1), 2(1,3); photon fields surrounding ITM streams and galaxies; fields arising as a result of interaction between cosmic objects, and many other structures. According to our concept, these fields are hindered by the lack of fundamentality, constancy, eternal, unchanging, dynamic equilibrium in everything, including time. But they have an abundance of variability, fluidity and random factor. Let’s try to understand this issue.

3.1) Ether field of the 1st type? But it, almost all, was used in the process of creating the “foundation” and “walls of the building” of the Universe (the “main” Field of “0”-strings and Two Shells of the Universe “+”, “-”), as well as “inter-

floor ceilings (3 Spheres of the Relic (“0”), (“+”) and (“-”) [6]). It was from it that the 4 “space-times” of our Universe were created.

3.2) Ether field of the 2nd type? But it is precisely this that does not meet the necessary requirements at all, because this “raw material” for the construction of worlds is in a constant cycle of movement [7], systematically replenished with new portions of this matter, constantly moving in the space of the Main Field of the Universe, and, if necessary, turning into triads of 6 types of DM.

3.3) DM (ITM, TTM and RTM)? But these types of Dark Matter are also a fluid substance, constantly moving in space.

3.4) The “photon” (in our terminology—field of “quanta of motion”) field of the ITM flow. It disappears after the galaxy is absorbed by the BH, which, in turn, also disappears someday [6] [7].

3.5) The forces of gravitational interaction between space objects? But they are not eternal either. With the disappearance or transition to a different qualitative state of stars or planets, the force of their mutual attraction changes, and therefore, the properties of the fields.

In general, any randomness in the functioning of the listed fields changes everything. Only 4 fields of the Universe—the “main” Field of the Universe from “0”-strings together with the Double Shell from “+” and “-”-particles and 3 Spheres of the Relic (“0”), (“+”) and (“-”)—are capable of maintaining a different from each other, but within each “space” eternal, unchanging dynamic equilibrium and the “time” associated with it.

4) Taking into account the different levels of the “eternal movement” of energy in the Universe, and therefore the different properties of “spaces” and “time” contained in the frequency of vibrations in these territories, is not easy. The human mind is not capable of direct contact with such an abundance of different layers of space and the multidimensionality associated with it. Therefore, if we try to imagine the problem, very schematically for now, then, when speaking about the “eternal movement” and “time” of the worlds of the Universe, it is important to remember the law of interaction of 3 neighboring worlds with each other [2], according to which the “space-time” of a higher world is superimposed and interacts with the “space-time” of the neighboring, lower world, but the Lower world can never influence the processes of the neighboring, higher world. At the same time, all worlds are absolutely freely penetrated by the “space-time” of the Highest worlds of the Universe.

5) There is an idea that the energy of “space-time”, or more precisely, the energy of “eternal motion” and the “time-eternity” formed by this energy, is something that exists somewhere very far away and lasts forever. In fact, “eternity” as a function of “eternal motion” is an energy that is constantly present at any point in the space of the Universe. At the same time, it is in contact with both the so-called “ordinary time” that exists on the territory of any cosmic object and with the time of the field of this particular world. The energy/matter of “eternal motion”, “Eternal time”, and “eternity” are not something separated from the ordinary “space-

time” in which, for example, people live. “Eternal motion” and “eternity” are simply another level that exists in parallel with “ordinary” and any other time. “Eternity” is always “here and now”.

At the end of Section 2, we would like to emphasize the importance of the concept of Spin, which characterizes the properties of fundamental and elementary particles at the quantum level. In our opinion, its fundamentality is similar to the fundamentality of the concept of charge. Since the Spin of a particle is its integral physical characteristic. Thus, we cannot imagine an electron without its charge and without its Spin, equal to  $1/2$ . Quantization of charge necessarily leads us to the presence of quantization of Spin and, accordingly, there must be particles, like photons in the case of an electromagnetic field, carrying the properties of Spin, since, in this case, we consider Spin as a source of a certain field, a spin field, and the carriers of this field are the particles that we call Spitons<sup>1</sup>. However, it is remarkable that there is a certain principle of universality of fundamental fields and, following [8], we want to emphasize that not only matter but also space-time has a spinor structure. This indicates the existence of degrees of freedom of the space-time field, which is not described within the framework of the usual tensor formalism, since the description of the nature of space-time requires its understanding at a deeper level, including its spinor structure in consideration. Let us formulate the problem of describing the gravitational field at the mathematical level, referring to an example from the classical electromagnetic fields well known to us. Indeed, the electromagnetic field in flat space-time is described by the electromagnetic field tensor  $F_{\mu\nu}$ , for which the characteristic equation, written in the form:

$$\|F_{\mu\nu} - \lambda g_{\mu\nu}\| = 0, \quad (3)$$

leads to an equation of the type:

$$\lambda^4 - (H^2 - E^2)\lambda^2 - (E_k H^k)^2 = 0, \quad (4)$$

from which it follows that the coefficients of this characteristic equation are invariants of the electromagnetic field and can be represented as:

$$F_{\mu\nu} F^{\mu\nu} = 2(H^2 - E^2) \quad \text{and} \quad F_{\mu\nu} F^{*\mu\nu} = E_k H^k \quad (5)$$

It is easy to see that for the Ricci tensor  $R_{\mu\nu}$ , the simplest invariant is  $R_{\mu\nu} R^{\mu\nu} = \text{inv} \equiv R$  scalar curvature, for which we can construct an action:  $S = \int R \sqrt{-g} d^4x$  from which, based on the principle of least action, by means of variation, we arrive at the classical Einstein equations, type (2). However, solving the eigenvalue problem for the tensor  $R_{\mu\nu}$ , similarly to (4), we can obtain:

$$\|R_{\mu\nu} - \lambda g_{\mu\nu}\| = 0 \quad (6)$$

We will omit the simple calculations, which, when expanding the determinant, lead to relations of the type:

<sup>1</sup>Here we introduced a new particle—Spiton.

$$\begin{aligned}
 & (R_{00} - \lambda g_{00}) \left\{ (R_{11} - \lambda g_{11}) \begin{vmatrix} R_{22} - \lambda g_{22} & R_{23} \\ R_{32} & R_{33} - \lambda g_{33} \end{vmatrix} \right. \\
 & \left. - R_{12} \begin{vmatrix} R_{21} & R_{23} \\ R_{31} & R_{33} - \lambda g_{33} \end{vmatrix} + R_{13} \begin{vmatrix} R_{21} & R_{22} - \lambda g_{22} \\ R_{31} & R_{32} \end{vmatrix} \right\} + \dots = 0
 \end{aligned} \tag{7}$$

From the last relation, we obtain that it is possible to construct an action on the invariants of relation (7), and this will lead us to a more general metric theory in comparison with Einstein’s theory. These equations can be obtained by simple variation of the new action obtained using these invariants. However, our final goal is to obtain equations for space-time, taking into account spin, which is an integral characteristic of space-time, as we noted above. Such equations, taking into account Spin of the gravitational field, can be constructed within the framework of Einstein-Cartan theory, if the curvature tensor is constructed using torsion, which, in a new way, defines Christoffel symbols in the form:

$$\Gamma_{\nu\tau}^{\mu} = \left\{ \begin{matrix} \mu \\ \nu\tau \end{matrix} \right\} + K_{\nu\tau}^{\mu}, \quad K_{\mu\nu\tau} = Q_{\mu\nu\tau} + Q_{\tau\nu\mu} + Q_{\nu\tau\mu}, \tag{8}$$

where we introduced torsion  $K_{\nu\tau}^{\mu}$  as a spin characteristic of space-time. The theory of the gravitational field, constructed on the invariants of the curvature tensor, taking into account torsion, will allow, in principle, to obtain the equations of the gravitational field, taking into account its spinor structure. The effects obtained within the framework of such a theory can be significant at the earliest stages of the evolution of the Universe near the singularity point.

### 3. The Role of BB in the Creation of “Space-Time” and “Furcation Territory”

In our concept [1]-[7] there is an understanding that at the source of the creation of the Universe there is Absolute Reality, unchanging, indivisible, frozen, calm, containing the Beginning of all Beginnings, the Properties of all properties and the Action of all actions in the very embryo of nature, extra-spatial, non-extended, timeless, self-sufficient, exclusively by its own internal desire and decision, capable of creating external phenomena, forming both Space and Time, it was only necessary to bring into “Eternal motion” its own, seemingly so unshakable, Forces. The personification of Absolute Reality and unshakable forces are the “0”-rings” (3 “rings” of Borromeo, united into one, which we called “Borromeon”), that is, the very unity, integrity and true fundamentality of which  $O_{SP}$ -space consists [3] [4]. At the same time, as we have emphasized, the fourth particle, deeply hidden and deliberately “swaddled”, is “Spin”<sup>2</sup>.

This amazing, fundamental super particle, consisting of 4 elementary particles merged together—“Rings”, embodies the following properties:

1-st “ring”—“pure gravity”. We can know neither the action nor the principles of its organization in  $O_{SP}$ -space, but since the meaning of the whole must include,

<sup>2</sup>In this case, we are talking about Spin, not as a quantum property associated with the operator of the proper rotation of a quantum object, but as a Spin—a particle that is the bearer of antisymmetric properties of space-time, in the spirit of the Einstein-Cartan theory.

at least, the meaning of each part, we assume that this gravity in such a world, incomprehensible to us, has shown completely unique properties, having turned into a specific structure, familiar to science under the name “Mobius Strip”.

Let us dwell here on the issue of the formation and structure of the Ring associated with “0”, which characterizes pure gravity and Spin. Earlier, in our work [4], we determined the conditions for a transverse rupture for a string twisted into a ring, associating this with a rotating ring, when its rupture is determined from the condition:

$$\omega \geq \omega_{CR} = \frac{r_{ST}}{R_{ST}} \sqrt{\frac{\pi \sigma_{ST}}{\rho_{ST}}}, \quad (9)$$

where  $r_{ST}$  —is the radius of the string cross-section,  $R_{ST}$  —is the radius of the Ring,  $\rho_{ST}$  and  $\sigma_{ST}$ , respectively, the density and internal stress inside the string (ring), and  $\omega$  —is the angular velocity of the ring rotation. It is natural to assume that such a rupture can only occur if the ring can move, and such a rupture can easily be understood when Borromeon passes through the B-WH bridge; however, in the case when the ring is in  $O_{Sp}$ -space and is deprived of such free movement, another mechanism of rupture is possible, when the ring, which is a “Mobius strip”, can experience a longitudinal rupture along the entire length of the Mobius strip, which can lead to a new topological structure, such as two rings connected to each other, the result of a longitudinal rupture of the Mobius strip along its entire length. With such a topological transformation, an additional twisting of the strip (ring) appears, which, according to the theory developed in [9], can be interpreted in a generalized topological space similar to isospin, as Spin. In addition, the energy released during rupture can be transformed into the energy of the rings’ own rotation or into the energy of the rings’ own oscillations. The force required for longitudinal rupture can be written as:

$$F_{Long} = 2\pi \sigma_{\parallel} R_{ST}, \quad (10)$$

where we have introduced the value of longitudinal tension forces in  $O_{Sp}$ -space,  $\sigma_{\parallel}$ , so that  $\sigma_{\parallel} \neq \sigma_{\perp} = \sigma_{ST}$ . It is also obvious that the energy required for a transverse rupture is less than the energy required for a longitudinal rupture. Therefore, in the case of a longitudinal rupture, one should expect, according to the analogy with the mass defect in nuclear physics, that the energy released during a longitudinal rupture is higher than during a transverse rupture. These movements that are obtained during the birth of such a structure are indestructible. Thus, we obtain that, in principle, the initially solid “0” ring, in  $O_{Sp}$ -space, can be transformed into a topological structure consisting of 2 connected rings. In this case, one of the rings represents spin properties, and the other, purely gravitational properties, and thus our single ring is transformed into a double ring:

$$"0" \xrightarrow{\text{Transform}} "00".$$

This “ring” personifies the property of “eternal movement”, intentionally hidden, “swaddled”, the source of which is the energy of the Prime Mover, which is completely incomprehensible to us, fundamentally connecting all other “rings”

into a single “ring”.

2nd “ring”—“The Great Life Force” (or otherwise—“Creative Energy”). The energy of the “Great Life Force” fills all existence. This is the energy by means of which the Universe is constantly renewed; this is the force that makes decisions about transformational changes—the destruction of the old and the creation of the new; this is the energy that decides what and when to start processing in Black Holes (BH) or building in White Holes (WH), where and when to give birth to new galaxies and worlds. Do we meet Creative energy in our three-dimensional world? Yes, we do occasionally. Everything great and progressive that a person creates in science, in inventive activity, in objective art, is based on the action of creative energy. And procreation is also one of the vital manifestations of this amazing energy. It is in Creative energy that knowledge about reality is embedded. In our Lower World, the ability to “see Reality” manifests itself in the ability to see “new paths,” to create “New directions of research,” to find “the right way out” of any difficult situation. The reality in the world of Earth is the “light of Knowledge,” which is not light in the usual sense. It is “flashes of insight, epiphany,” “flashes of inspiration,” it is the confidence that is strangely maintained in a person even when, it would seem, nothing foreshadows success.

3rd “ring”—“Omnipresent Mind”. The energy of the “Omnipresent Mind” on Earth means understanding an event (phenomenon, knowledge), which arises not when a problem is solved by attracting something new, but due to the ability to combine disparate facts, identify connections, meanings, values that we have not seen before... This is a state when a person can “turn on” distance, a view from the outside, abstraction. To understand what influence the Big Bang had on the formation of the “space-time” fields, let’s consider the early stages of the evolution of the Universe.

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If we mentally trace the stages of the self-deployment of the Universe [4], we can understand which directions in this process were priority for it, what was their sequence, from what matter/energy they were created, which particles played a key role at each stage. According to our concept [1]-[7], at one of the stages of the creation of the Universe, a “furcation territory” was created, which chose several directions of the creation of cosmic matter, by the combined efforts of which the visible worlds were created. Scientific thought suggests that the birth of the Universe, without going into details, occurred as follows: BB, the formation of DE and DM, the creation of cosmic objects of different volumes, mass and quality, on one of which intelligent life accidentally arose. Based on our concept, this process was carried out somewhat differently: far from mechanically and absolutely consciously.

Let’s try to figure out where and when the said “furcation territory” arose, and what directions of cosmic matter it gave birth to.

1) Assuming that the source of the Universe is the 3 “rings” of Borromean space

(“Borromeons”), we have shown the possibility of the presence of hidden energy in them, completely incomprehensible to us, and the ability of this energy to transform 3 “rings” with different properties into a Single Whole—“Borromeon” [3].

2) After the transformation of the “Borromeons” into the B-WH, the emergence of the Unique Paired “motionally-gravitational “0”-particle and 2 other elementary particles of the Ether of the 1st type (“+” and “-”), 2 fundamental structures of the invisible world were created: a) The Double Shell of the Universe, united with the Main Field of the Universe (“+”, “0”, “-”) (this is how the DE was formed for the first time in the Universe; b) and the Relic, consisting of 3 separate Spheres (“0”), (“+”), (“-”) [6].

3) The key event in the process of self-deployment of the Universe was the Big Bang and the formation of fundamental particles of the 2nd type Ether “3”, “2”, “1”. But not only that the emergence of a colossal mass (30%) of matter of this type required the creation of:

a) a system of distribution and concentration of the formed particles in the space of the Universe—special “places” where, based on “resonance”, further evolution of particles of the 2nd type Ether could occur;

b) a distribution area, that is, a certain “furcation territory” for choosing error-free directions of the creation processes with the purpose of subsequent creation of viable structures of visible worlds and the Universe as a whole. There were no prepared “sites” for the implementation of both the first and second tasks at the early stage of the evolution of the Universe. And what was available? Only 3 Relic Spheres of “0”, “+” and “-” elementary particles of the 1-st type Ether. These were 3 separate spheres, each of which represented a huge territory of the Universe, filled with homogeneous particles that could not be called Unified matter, Organized and Aware of Its Purpose. And the TE, which included the long “strings” of the Main Field, was not yet a holistic, welded-together structure capable of purposefully solving problems associated with the particles of the Ether of the 2nd type that flooded its expanses.

4) The power of the Big Bang energy changed everything. This Great Impulse and the monstrous temperature generated by it allowed “melting and crystallizing”:

a) the Main Field of the Universe into the “Main Field of space-time” of the entire Universe;

b) the three Spheres of the Relic—into the Triad of TE “00” (“+”, “-”) with a unique leader—the “00” particle at the head. And this was no longer just a triad of TE. It took the form of a Unified matter of gigantic dimensions, consisting of 3 Spheres—the fields of “space-time” of the Higher, Middle and Lower worlds. But, what is especially important, in the process of these changes, the Sphere of the Higher World of “0”-particles, having mixed with the related “0”-strings of the Main Field of the Universe, acquired double motionally-gravitational energy and turned into a “furcation territory” consisting of “00”-motionally-gravitational elementary particles (we called this territory a double “small field” [7], the field of

“space-time” of the Higher World).

5) This “00”-double, intensive, unparalleled in the Universe, motionally-gravitational energy, having become the “space-time” of the Higher visible world, successively penetrated first into the (“+”) Sphere of the Relic, transforming it into the “space-time” of the Middle world, and then into the (“-”) Sphere of the Relic, turning it into the “space-time” of the Lower world. And the “alloy” fixed all these transformations forever. Now, it became impossible to separate the particles of the fields from each other. The fields became indivisible, individual, and independent. And, what is especially important, the state of the “alloy” gave the matter of the fields new, emergent properties, which we called in Section 2 “eternal, unchanging, dynamic equilibrium, that is, the territory of the Universe, in which all points are connected not by “time”, but by the intensity of the energy of “eternal motion” filling them; where “time” became a measure of the characteristics of dynamics.

6) Thus, with the participation of the incomprehensible energy of the Big Bang, the most important stage of the creation of cosmic matter of the early Universe was completed—the creation of the “space-time” of the Main Field of the Universe and 3 unique fields of “space-time”, that is, 3 fundamental sites for the creation of baryonic matter of 3 worlds.

7) Following the creation of 3 fields of “space-time”, one of them—the “territory of furcation”—began self-deployment of the 1st direction—the formation of triads of matter of each world from Ether of the 2nd type, 30% of the mass of which after the Big Bang was still chaotically moving in the vastness of the Main Field of the Universe [6] [7].

8) For this purpose, the “waves” of the “space-time” of the Main Field of the Universe began to collect and direct to the “furcation territory”, that is, to the “00” field of the “space-time” of the Higher world, the corresponding volumes of particles of the Ether of the 2nd type “3”, “2”, “1”. Having found themselves under the influence of the vibrations of the “place”, the Ether particles formed 2 types of triads of the Integrating DM 3(1,2) and 3(2,1). Following this, the “waves” of the Main Field sent the required amount of the same Ether of the 2nd type to the territory of the “space-time” fields of the Middle and Lower worlds, where they, having entered into resonance with the energy ruling in these fields, were reconstructed into the corresponding DM: in the Middle world—into TTM of two types 1(3,2), 1(2,3); and in the Lower World—in RTM 2(3,1), 2(1,3) [1].

It should be noted that the “waves” of the “space-time” of the Main Field of the Universe can create, colliding with each other, points of maximum compaction of matter and, accordingly, along these lines of collision of wave fronts, the formation of structures can occur, similar to superclusters of galaxies, which subsequently can be responsible for the creation of a cellular (web-like) structure of the Universe. This idea, in turn, was expressed by Ya.B. Zeldovich. We would like to point out that the fact that the Universe has a cellular structure suggests the possibility of constructing a cosmological model that has a crystalline structure on

intergalactic scales. In the one-dimensional case, the solution of Einstein's equations for a string with an arbitrary distribution of matter along it was obtained in the work [10]. A cosmological model with a discrete distribution of matter in the form of a crystal was considered in the work [11].

9) The formation of 6 types of cosmic matter (DM) in 3 fields allowed the “furcation territory” to make another choice in favor of the next, 2nd direction—the creation of the materiality of worlds, that is, the creation of “atoms-building blocks” and the formation of the structures of the Higher, Middle and Lower worlds from them. The “furcation territory” itself—the Double “small field”—was the first to start solving the set task. It formed “atoms-building blocks” from the matter of the Higher world, 3(1,2) and 3(2,1), consisting of 3 Forces of ITM, which, unlike the “Borromeons” of space, were not “welded together”, but separated, that is, if necessary, capable of interacting with the Forces of other worlds. It was from such “atoms-building blocks” that the “ITM flows” were formed [2]-[7]. The forces in these “bricks” had two properties, the most powerful and the highest of all possible in the visible Universe:

a) a unique gravitational ability to glue together the “bricks” of the Middle and Lower Worlds with any number of elements included in their composition;

b) a special ability of the “spins” of the highest values to “twist” the matter of the Streams into a spiral form, rushing at incredible speed to the place of creation of the “Nucleus” of the future galaxy and the black hole in its center [2] [6].

10) Having found themselves in the “space-time” of the Middle World, the triads of matter TTM 1(3,2), 1(2,3) of this world joined the “atoms-bricks” of the ITM Streams. Thus, “atoms” were formed from 6 Forces ( $3itm + 3ttm = 6$  forces) of the Middle World, in which 3 Forces belonged to the Higher World, and 3 to the Middle World. From these “bricks”, the entire materiality of the Star World was formed, similar to our Milky Way.

11) In the Lower World, where the triads RTM 2(3,1), 2(1,3) were formed in “space-time”, 3 forces of the Upper World, 6 forces of the Middle World and 3 forces of the Lower World took part in the creation of the “bricks” ( $3itm + (6) + 3ttm = 12$  forces). Yellow Dwarfs like our Sun were created from such “atoms-bricks”. If we continue to follow this logic, then the “atoms” of the Gaseous planets of the Solar System, accordingly, arose from ( $3itm + (6) + (12) + 3gas.pl = 24$  forces); The Earth's “building blocks” are made up of ( $3itm + (6) + (12) + (24) + 3 earth = 48$  forces), and the Moon's “building block atoms” are made up of ( $3itm + (6) + (12) + (24) + (48) + 3 moon = 96$  forces).

12) In paragraphs 8-11, we demonstrated the structures of the primary “building block atoms” from which the objects of the entire “chain” of the Ray of Creation were created in order to explain 2 things:

a) In each world, the main force powerfully glues together the “building blocks” of all previous worlds with the matter of the lower world into a single whole, which is always one single, very first triad—3 ITM. But it is one thing when 3 ITM gravitationally glues together, for example, only one triad of 3 TTM, forming a “building

block” of the Middle World from 6 forces ( $3itm + 3ttm = 6$  forces). And it is quite another thing when the same triad  $3itm$  joins to itself  $(6) + (12) + (24) + (48) + 3$  moons = 96 forces);

b) the examples given allow us to, at least to a small extent, understand what kind of force is hidden in the gravitational property of gluing the “3”-particle of the ITM, and why Paul Ehrenfest so convincingly insisted on the idea of the indestructibility of atoms in the natural conditions of the world that was created on their basis [3]. At the same time, these examples clearly demonstrate the validity of the idea we expressed earlier: the lower a particular world (object) is located in the Ray of Creation, the slower and more clumsy it is, which indicates extremely low (in comparison with “eternal motion”) values of the “spins” functioning in this cosmic structure. This, in turn, explains the reason for the return of gravity to its natural properties of scattered and, therefore, invisible matter.

13) Cosmic objects in all worlds interact with each other and radiate energy, creating matter of gravitational interaction forces in the vastness of the Universe. Can these forces be considered a separate direction of creation of the “territory of furcation”? After all, in essence, these vibrations are derivatives of the forces of the structures created by DE and DM. And yet we cannot help but touch upon the problem associated with this, the 3rd direction of self-deployment of the Universe.

Gravity on a large scale of the Universe manifests itself more powerfully, the higher in the hierarchy of its worlds a particular world is located [6] [7]. But the higher the world, the lighter and more rarefied the matter of the triads from which it is built, and this means that the farther apart the particles of the DE or DM triads from which the worlds of the UCM are created are located [6] [7]. To prevent the triads of matter (and therefore the worlds) from disintegrating, nature invented a mechanism called the “force of gravitational interaction”. This Force, which holds the triads of matter in Unity and Integrity, becomes more powerful and effective, and the shorter the vibration cycle of the particle, the more time is required to complete one vibration cycle. The reverse side of this process in the Universe is the emergence of absolute “timelessness” and “eternal motion” in the world of DE and in the Higher World of DM—“Streams of ITM”. But already in the Middle and Lower Worlds of the Universe, Nature slowly and smoothly replaced the absolute character of “eternal movement” and “timelessness” with relative “eternal movement” and “timelessness”.

And this is not accidental. We know that to perform any work, nature always uses the energy of the corresponding, that is, suitable type (“Nothing beyond reasonable measure!”). That is why at small distances, for example, in the conditions of the Earth, where the vibration cycle is much longer (that is, with a significant wavelength), for the preservation of the Unity and Integrity of the triads, the manifestation of the Forces of Gravitational Interaction of energies with an ever greater share of mechanics, slowness, as well as a clear and diverse manifestation of time turned out to be necessary and sufficient. In other words, for small scales of the Universe, where the matter of the triads is heavier and denser (that is, the

particles are located closer to each other), the “territory of furcation” provided for the action of weak forces of gravitational interaction.

14) There is a category of matter in the Universe, the existence of which is indisputable, but about which cosmology is still silent. We are talking about the matter of the Spirit. In no world of the Universe does there exist “matter” without signs of different degrees of manifestation of the Spirit—Consciousness, Will, etc. It is just that in different worlds, the properties of this matter manifest themselves differently. This also means that spiritual life in different worlds requires the use of corresponding fundamental particles and the presence of gravitation properties with a specific ability to glue, deform this matter and manifest themselves with different intensities in each world. After all, the matter of the entire Universe was created only in order to ultimately fill it with life, creativity, and intelligence of varying degrees of perfection. And the radiation of the Stars, as well as the light of our Sun, was necessary to support life and the evolutionary development of the worlds of the Universe, and not at all to delight the eyes of earthlings with their enchanting appearance. In different worlds, the manifestation of these very special properties of matter differs radically from each other: the higher the world (the world of ITM 3(1,2) and 3(2,1)), the more powerfully the One Will, the Absolute Truth, the Unifying energy (Love) are manifested in its materiality; in the Middle World (the world of Giant Stars), the creative energy—the energy of true consciousness (TTM 1(3,2), 1(2,3))—is especially powerfully manifested. The lower the world (the world of Yellow Dwarfs), the more clearly the energy of the omnipresent mind (RTM 2(3,1), 2(1,3)) gains strength in it. But on gaseous planets and, especially, rocky ones, these Great energies often lose strength and are replaced by other, slower, Sensitive and Automatic energies, and therefore less intelligent and not having the best effect on the possibility of the evolutionary development of a particular object.

This problem still requires a comprehensive study by many sciences, but the fact that in the “territory of furcation”, the choice of this, the 4th direction of creation of matter of visible worlds was given the greatest importance is beyond doubt.

There is an explanation for this circumstance. The Universe is a complex of vibrations of matter of different types and densities, from the finest to the coarsest, where each wavelength corresponds to a special property of the given matter. Arising in the Main Field of the Universe and the 3 Spheres of the Relic, vibrations continue to act in other worlds in different quality, intersecting with each other, merging, strengthening or weakening, and, eventually, fading. We have considered the law governing the slowing down and deviation of vibrations from the original direction [2], and the principle of energy transformation [6], creating new types of matter, earlier. If we look at DE and DM from the point of view of these laws, we can follow the Path of DE transformation into the matter of different degrees of manifestation of the Spirit. According to our concept [1]-[7], at the initial stage of the construction of the Universe, 2 types of matter arose from 100%

of the 1st type Ether:

a) from 70% of the Ether, the TE “0” (“+”, “-”); “0” (“-”, “+”) was formed, the main purpose of which was the construction of the “foundation”, “interflow ceilings” and the “building” of the Universe itself [6]. This Grandiose structure could not have been built without the manifestation of such a powerful spiritual property as the energy of Will, which was personified by the “0-strings” of the “motionally-gravitational” particles. At the same time, the creation of such a structure did not imply and did not require the endowment of its component parts with high spiritual meanings;

b) from the remaining 30% of the 1st type Ether, the “seeds of creation” (“+”, “0”, “-”) were formed, from which, after the Big Bang, the 2nd type Ether was first formed (particles “3”, “2”, “1”), then, successively, 3 types of DM (ITM, TTM and RTM) and, finally, the Higher, Middle and Lower visible worlds were created. The particles of the “seeds of creation”, having exchanged their properties in the process of “triad democracy” [1], after the Big Bang not only acquired vibrations of a different type and density, however, due to their fundamental nature, became independent, self-sufficient [3] [7] and, what is especially important, meaningful, that is, filled with spiritual content (while the degree of meaningfulness was recorded in the CODs of the particles [3]). The question inevitably arises: if in the visible world every smallest part has a certain meaning, can matter and objects created from such matter not have meaning?

ITM 3(1,2); 3(2,1) is the Integrating (Unifying) dark matter, the gravitational power of which we have written about more than once. This energy is usually identified with Universal or General Love. Because the harmony of the Unity of All That Exists presupposes many tonalities for its perfection, and only energy like ITM can work in different ways and at different levels. It’s just that in different worlds, the properties of this matter manifest themselves differently: the higher the frequency of vibrations and the lower the density of matter, the higher the degree of its awareness, expressed in universal love. This same matter of high space, descending to the level of gas and rocky planets, increasingly compresses, changes, and ultimately becomes the matter of the Spirit and the psychic life of people. At the same time, we should not forget that this universal energy goes beyond what is accessible to man and can only influence him indirectly.

TTM 1(3,2); 1(2,3)—Creative Dark Matter, the main matter of the worlds of giant stars like our Milky Way. In this article, we talked about it as the energy by which our Universe is constantly renewed. Despite its universal nature, this energy on Earth has a hidden property: on the one hand, for some people, it serves as a source of successful creativity, and on the other, it becomes a source of life-giving force—the birth of offspring. And these are only some of its vital manifestations from those that can play a direct role in human experience.

RTM 2(3,1); 2(1,3)—Intelligent dark matter, the matter of Omnipresent Consciousness, which also has levels—the higher the world, the higher the level of consciousness inherent in the materiality of this world. It cannot be said about

people of the earthly world that they “possess consciousness.” All they can do is interact with the conscious energy surrounding them. In this sense, it can be said that consciousness, being accessible to a person, can sometimes enter into his experience, but for such spiritual growth, certain knowledge and diligence in work are required. We have listed the types of UCM, with the help of which the invisible and visible worlds of the Universe are built, which, as the realization of one of the obligatory directions of the “territory (point) of furcation”, include one or another degree of manifestation of the matter of the Universal Spirit. And, what is important: all the existing diversity of cosmic phenomena arises from the same few primary elementary forces—“0”, “+” and “-” particles, previously included in the composition of the Ether of the 1st type.

The role of the BB is also easy to understand, based on the fact that for the Universe, the processes occurring in it can be considered, in good approximation, as adiabatic. Then, assuming that at the point of the BB, the matter filling it, at such high temperatures can be considered as a kind of radiation, the entropy of which can be described as:

$$S_{\gamma} = \frac{16\sigma}{3c} T^3 V, \quad (11)$$

where  $\sigma$  —is the Stefan-Boltzmann constant,  $c$ —is the speed of light,  $T, V$  —is the temperature and volume in the BB region, respectively. Then it can be estimated that in the area of the BB, the following relationship takes place:

$$\delta T = -\frac{1}{3} T \frac{\delta V}{V} \quad (12)$$

The energy of the BB, acting on the areas of localization of the Main Field and the three spheres of the Relic, will contribute to an increase in temperature and internal melting in these structures, forming new properties of space-time in these areas. Part of the energy of the BB is spent on melting and the formation of new bonds in these structures, the cooling of which is ensured by the transfer of part of the energy of the BB to expansion and, accordingly, cooling, ensuring the strengthening of newly formed bonds in these structures.

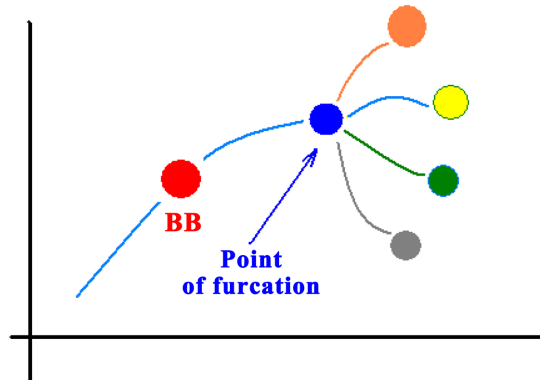
#### 4. Gauss-Laplace Curve and Furcation Points

Let us consider the mathematical definition of the Gauss-Laplace curve, which, in the one-dimensional case, characterizes the normal distribution of the probability density, defined as:

$$f(x) = \frac{1}{\sqrt{2\pi}\sigma} \cdot e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}, \quad (13)$$

where  $\mu$  is the mathematical expectation, or the average value of the determined quantity, and  $\sigma$  is the standard deviation. Then, considering the development of a certain process in the Universe and characterizing it by a normal distribution according to the Gauss-Laplace curve, we can come to a condition when the current development of the process, due to various physical conditions, becomes unstable

and can break up into several processes emanating from this area of instability, according to the **Figure 1**:

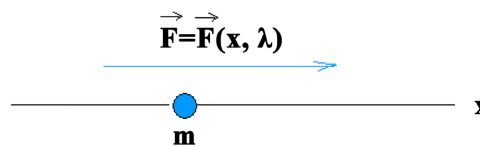


**Figure 1.** Reaching the furcation point of the current process with the subsequent disintegration of this process into several others, described by the Gauss-Laplace distribution law.

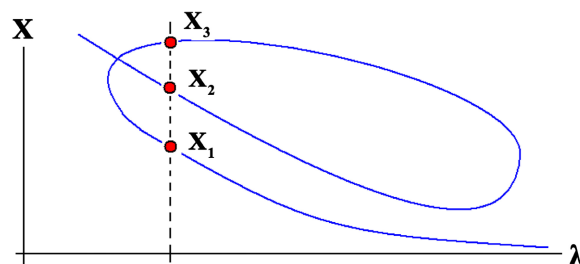
However, it is of interest here to understand how a furcation point arises in physical systems. Let us imagine that we can consider the Universe as a conservative system, the state of which is determined only by processes occurring only within itself. The theory describing such processes was created by Poincaré, and we will consider, using a simple example, how to depict such furcation points arise in an arbitrary one-dimensional physical system described by the equation of motion:

$$m \cdot \frac{d^2x}{dt^2} = F(x, \lambda), \tag{14}$$

which can be depicted in **Figure 2**:



**Figure 2.** One-dimensional motion in a conservative system, depending on the parameter  $\lambda$ .



**Figure 3.** Dependence of equilibrium positions on the parameter  $\lambda$ .

It is obvious that in the general case, the dependence of the curve, determined

by the equilibrium position of the point with mass  $m$ , is nonlinear and is given by the relation  $F(x, \lambda) = 0$ . The question arises: how do furcation points arise on the equilibrium curve in this case? This can be easily demonstrated in **Figure 3**.

From this figure, we see that on the equilibrium curve  $F(x, \lambda) = 0$ , with the same parameter  $\lambda$ , there are several equilibrium points, and such points are called furcation points since, in each of them, the development of the process has a different direction, and then the question of studying their stability arises. In our analysis of this problem, we follow the remarkable work of A. Andronov, slightly expanding it to understand the processes we are considering. If we assume that the system we are considering is described by the Lagrange function  $L = T - V$ , then the equation of motion can be easily written through the Lagrange function as:

$$m \cdot \frac{d^2 x}{dt^2} = F(x, \lambda) \rightarrow \frac{d}{dt} \left( \frac{\partial L}{\partial x'} \right) = \frac{\partial L}{\partial x} = -\frac{\partial V}{\partial x}, \quad (15)$$

here  $x' \equiv \frac{dx}{dt}$  and then, we obtain that the equilibrium positions correspond to the condition:

$$F(x, \lambda) = -\frac{\partial V}{\partial x} = 0 \quad (16)$$

Then, taking into account (16), we obtain that at the equilibrium points, the interaction potential is determined by the expression:

$$V = V_0 - \frac{1}{2} \frac{\partial^2 V}{\partial x^2} \cdot (x - x_s)^2, \quad (17)$$

where the derivative is determined at the equilibrium point  $x = x_s$ . Then, the stability condition for the furcation point is written as the relationship:

$$\frac{\partial F(x, \lambda)}{\partial x} = -\frac{\partial^2 V}{\partial x^2} < 0, \quad (18)$$

And the stability condition at a point  $(x, \lambda)$  is determined by the relations:

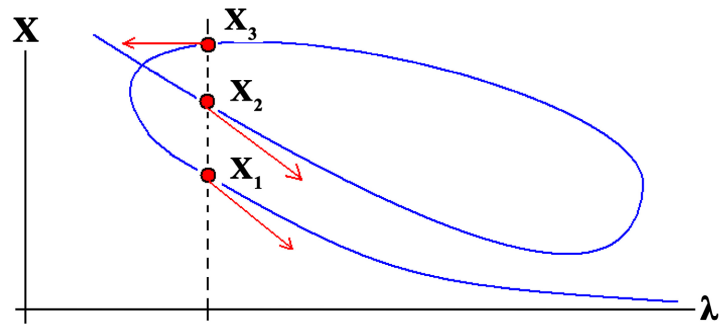
$$\begin{cases} \frac{\partial F(x, \lambda)}{\partial x} < 0, & \text{stability} \\ F(x, \lambda) = 0, & \text{equilibrium} \\ \frac{\partial F(x, \lambda)}{\partial x} > 0, & \text{instability} \end{cases} \quad (19)$$

From the relation,  $F(x, \lambda) = 0$  it follows that:

$$\frac{dx}{d\lambda} = -\frac{\left( \frac{dF(x, \lambda)}{d\lambda} \right)}{\left( \frac{dF(x, \lambda)}{dx} \right)} \quad (20)$$

Thus, for each point of the series:  $x_1, x_2, \dots, x_k, \dots$  we obtain our own direction of development of the evolution of motion, determined by the value of the derivative  $\frac{dx}{d\lambda}$  at these points, until the condition is met:  $\frac{dF(x, \lambda)}{dx} \neq 0$ , which can be

graphically represented as (see **Figure 4**):

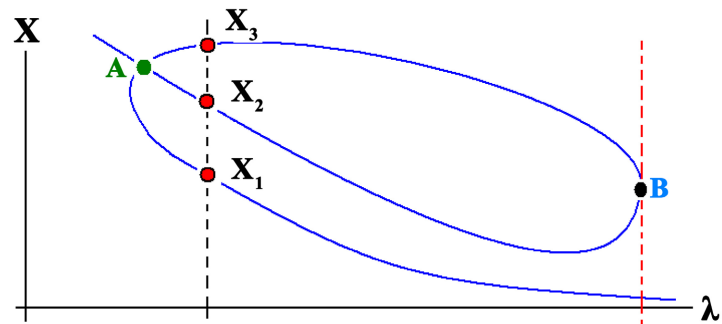


**Figure 4.** Directions of motion specified at points  $x_1, x_2, \dots, x_k, \dots$ , etc.

Relation (20) shows the existence of singular points on the equilibrium curve, which can be classified as follows: when the condition is met:

$$\frac{dF(x, \lambda)}{d\lambda} \neq 0 \quad \text{and} \quad \frac{dF(x, \lambda)}{dx} = 0 \tag{21}$$

From condition (21), we come to the conclusion that when there are vertical tangents to the equilibrium curve, there are turning points on the curve, which are considered furcation points on the equilibrium curve  $F(x, \lambda) = 0$  (see **Figure 5**, point B):

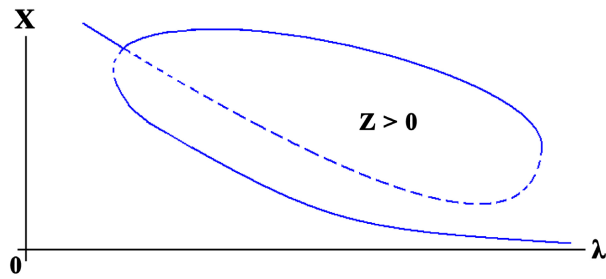


**Figure 5.** Furcation point B and singular point A.

In the case when the condition is met:

$$\frac{dF(x, \lambda)}{d\lambda} = 0 \quad \text{and} \quad \frac{dF(x, \lambda)}{dx} = 0, \tag{22}$$

A situation arises when at a point (see **Figure 5**, point A), the derivative  $\frac{dx}{d\lambda}$  is not defined. Taking into account the analysis performed, we can conclude that the stability regions on the equilibrium curve can be determined from the condition that for a section of the surface  $z = F(x, \lambda)$  by a plane  $z = F(x, \lambda) = 0$ , the stability regions are obtained at  $z > 0$ . That is, if a section of the equilibrium curve is located above the region  $z > 0$ , then the points of the equilibrium curve are stable. Otherwise, they are unstable. (**Figure 6**)



**Figure 6.** Stability regions on the equilibrium curve, determined by the condition  $z > 0$ .

Let us now move on to the study of the question of when a process proceeding according to the Gauss-Laplace curve, at the furcation point, following the classification carried out, will break up into several parallel processes. In this case, each of the processes is described by its own Gauss-Laplace curves. A question arises for research, which consists in determining the relationship between the parameters of these processes. If we proceed from the fact that the probability density, characterized by the relation (13), during the breakup, should have the same probability density that the system had at the furcation point. Then, our task is reduced to optimizing the relation:

$$f(x_0) = \frac{1}{\sqrt{2\pi\sigma}} \cdot e^{-\frac{1}{2}\left(\frac{x_0-\mu}{\sigma}\right)^2} = \frac{1}{\sqrt{2\pi}} \sum_{k=1}^4 \frac{1}{\sigma_k} e^{-\frac{1}{2}\left(\frac{x_0-\mu_k}{\sigma_k}\right)^2}, \tag{23}$$

where the optimization parameters are the variances and mathematical expectations  $\sigma_k$  and  $\mu_k$ , where  $k=1,2,3,4$ . It is obvious that the initial process, uniquely determined up to the furcation point, must be specified by the initial parameters  $\sigma$  and  $\mu$ . In this case, we choose the functional to be minimized in the following form:

$$\Phi(\mu_k, \sigma_k) \Big|_{k=1,2,3,4} = \left[ \frac{1}{\sigma} \cdot e^{-\frac{1}{2}\left(\frac{x_0-\mu}{\sigma}\right)^2} - \sum_{k=1}^4 \frac{1}{\sigma_k} e^{-\frac{1}{2}\left(\frac{x_0-\mu_k}{\sigma_k}\right)^2} \right]^2, \tag{24}$$

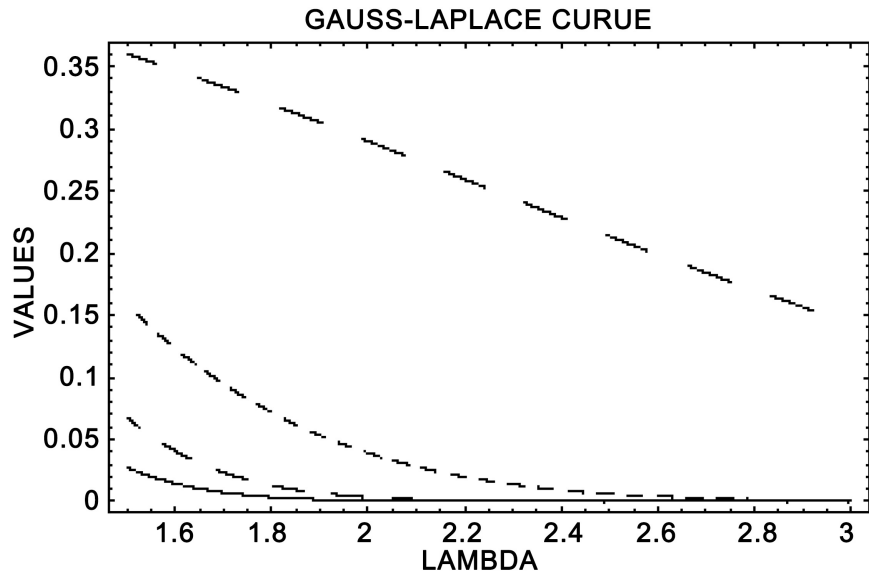
Here, the furcation point corresponds to the value  $x_0$ , and the process parameters up to the furcation point are determined by the values  $\sigma$  and  $\mu$ . The results of optimization for the parameters  $\sigma_k$  and  $\mu_k$  are reflected in **Table 1**.

**Table 1.** Parameters of optimization.

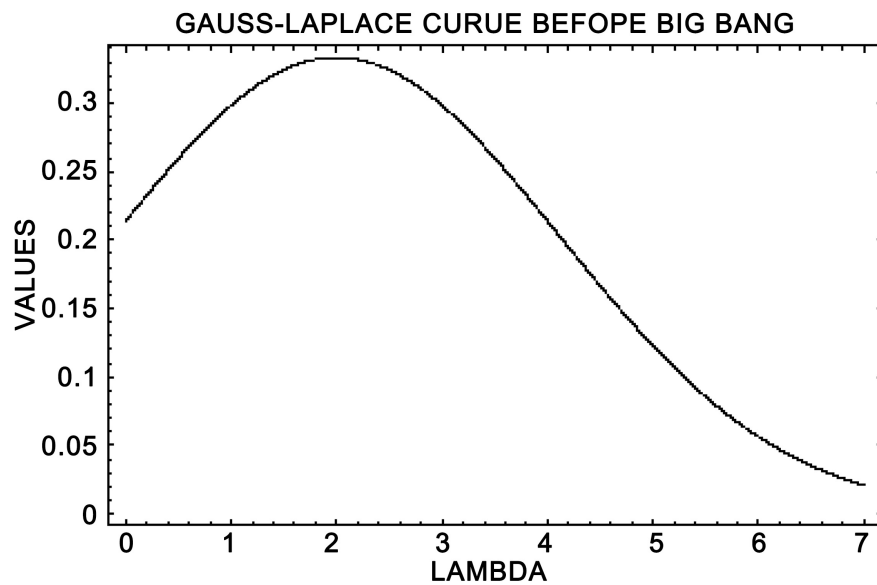
$k$	1	2	3	4
$\sigma_k$	0.657904912	1.107336524	0.713074627	2.359487114
$\mu_k$	0.182475449	0.037582914	0.258897410	0.546105691
%	$\approx 0.0737$	$\approx 3.9061$	$\approx 0.3611$	$\approx 28.9924$

Here, for simplicity, the modeling parameters are chosen as follows:  $x_0 = 2.0$ ,  $\sigma = 3.0$  and  $\mu = 2.0$ . In this case, for the values shown in the table, the accuracy of the achieved local minimum is  $\sim 1.6 \times 10^{-28}$ , the value of the function is

$\sqrt{2\pi}f(x_0) = \frac{1}{3}$ , and the sum is  $\sum_{k=1}^4 \frac{1}{\sigma_k} e^{-\frac{1}{2}\left(\frac{x_0-\mu_k}{\sigma_k}\right)^2} \approx 0.333333\dots$ , which can be easily verified by direct calculations. (Figure 7, Figure 8)



**Figure 7.** The furcation point corresponds to the value  $x_0 = 2$ , and the value at which the Big Bang occurs corresponds to the value  $x < x_0$ .



**Figure 8.** The furcation point corresponds to the value  $x_0 = 2$ . The Big Bang precedes the furcation point, corresponding to the value  $x = 1 < x_0$ .

Note that at point BB, according to our model of the Gauss-Laplace curve, we took the probability density equal to  $\approx 33.3(3)\%$ , which subsequently, after the furcation point, splits into four processes with a similar total probability density. Table 1 establishes the probability density distribution of the four processes after the

furcation point.

In this section, we are dealing with a very difficult topic, the solution of which is currently unknown and an open problem. It is well known that the percentage of the content of Dark Energy (DE), Dark Matter (DM) and baryonic matter (BM) is obtained from observations of the relic spectrum by the nature of acoustic peaks [7], while the nature of DE and DM, at this stage, is also a debatable issue that does not have a generally accepted explanation. Nevertheless, let's consider this problem from the point of view of our approach [3] [4] and find out how much uncertainty of understanding in this matter can be removed.

## 5. Conclusions

According to observational data, the Big Bang is considered an established fact of the beginning of the creation of the Universe. The material of this article allows us to conclude that the role of the Big Bang in the creation of the Universe is extremely simplified compared to what it performed in reality. In our work, we show the creative role of the Big Bang, which is a key element in the creation of the Unified space-time of the DE and three relic Rings of "0", "+" and "-".

1) The article shows how the Big Bang and the colossal temperatures associated with it created:

- a) a special type of cosmic matter—DE;
- b) four fields of "space-time" with specific properties necessary for the construction of the worlds of the Universe;
- c) Ether of the 2nd type, which became the "raw material" for the formation of DM and the creation of three visible worlds on its basis;
- d) the point of furcation, which formed 4 directions of self-unfolding of the visible Universe (for clarity, the Gauss-Laplace curve is demonstrated, and the classification of furcation points within the framework of the Poincaré theory is considered).

2) The work describes the mechanism of interaction of particles of the 2nd type of Ether with the fields of "space-time"; the special significance of resonance between the field and the Leader particle is shown; the type of matter-negotiator that understands the language of the Leader of the triad is revealed.

3) The article examines the nature of each of the 3 Borromean "rings"; and describes the method of formation of the "motionally-gravitational" particle in the form of a special structure called the "Möbius strip". The dependence of the manifestation of various properties of gravitational matter (deformation into a wave-like or spiral form, powerful gluing or being in a scattered, shapeless, and therefore invisible state) on the power of the dynamics of the Spin working in tandem with it is revealed: the lower the world is from the "furcation territory", the weaker the dynamics of the "Spin", the more difficult it is to detect gravity.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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