

Model of the Origin of the Universe: Stationary or Creationist?

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Abstract: After analyzing the stationary and creationist models of the Universe, it is shown that the most scientifically substantiated model is the stationary Universe with various equilibrium, dynamic processes and phenomena. All creationist models, both scientific and religious, come into insurmountable contradiction with A. Einstein's STR, since they postulate the primary existence of an ideal world before the formation of the Universe, that is, before the formation of space-time.

Keywords: Stationary model of the Universe, creationist model of the Universe, Big Bang, inflation, idealism, materialism.

INTRODUCTION.

The question of the origin of the Universe is more related to philosophy than to cosmology, since it is not subject to experimental verification. Obviously, at this level of development of science, we will not be able to create a Universe similar to ours. But, this is a very interesting question, therefore, let's try to philosophize taking into account modern knowledge in physics.

In general, there are two opposite approaches to the origin of the Universe:

1. The model of a stationary Universe, which assumes that the Universe has always existed, and as a whole, remains unchanged. In such a model, various dynamic processes and phenomena can and will occur, but the existence of a certain balance of matter and energy is assumed. Therefore, the Universe as a whole remains unchanged. As a consequence of this approach, the question of where the Universe came from is essentially meaningless.

2. Creationist model of the Universe that states that the Universe has a beginning and an end. That is, at first there was no Universe, and then, for whatever reason, it was formed. This model postulates the existence of a birth process, in fact, an act of creation, and therefore, includes both scientific theories of the origin of the Universe and a religious approach.

Let us analyze these two models of the formation of the Universe in more detail.

RESULTS AND DISCUSSION.

1. First, consider a stationary Universe.

The stationary Universe is unchanged as a whole. But, various dynamic processes in it will occur constantly, it is important that there will be a certain closed circuit of matter and energy. Moreover, this circulation of

matter is the cause of all phenomena and processes in the Universe, such as the scattering of galaxies, the predominance of matter over antimatter, the formation and destruction of galaxies, black holes, stars, planets, solar systems, atoms, nuclei, various microparticles, etc.

The evolution of all cosmic systems, both macro and micro, will be conditioned by the given circulation of matter and energy in the Universe. Science, with this approach, should simply study the physical essence of real-life processes, since there is no need to explain the cause of the emergence and origin of the Universe, and hence matter. This is a complete analogy with a similar approach in quantum mechanics: “shut up and count”.

The assumption that the Universe has always existed and will always exist is quite reasonable. Indeed, according to A. Einstein's general relativity, the Universe is our 4-dimensional space-time. Apart from the Universe, that is, our space-time, we do not know anything. Time cannot be considered separately from space-time, that is, separately from the Universe. This is a mistake that leads to speculation about what happened before “the beginning of time”.

Outside the Universe, there is no such thing as “time”!

“The beginning of the Universe”, like time itself, is the terminology of this Universe. That is, we are trying to describe the emergence of the system itself by the “internal” characteristics of the system... Obviously, this is impossible.

“The beginning of time” simply does not exist. There is only our space-time, that is, our Universe. Moreover, time and space in it are connected by a simple formula (for an infinitely small displacement):

$$dS^2 = c^2 * dt^2 - dx^2 - dy^2 - dz^2$$

Due to the fact that space-time is connected, the speed of light is maximum in our Universe [1]. This connection is also the reason that time in the Universe is relative, that is, it depends on the frame of reference in which you measure time.

The formula connecting space and time shows that when time changes, the length of objects (that is, space) will also change, and vice versa. At low speeds, this is not noticeable. But, if we move with a speed comparable to the speed of light in a vacuum, then with our own eyes we will see how objects change length, and time slows down...

Consequently, there is no “universal clock” in the Universe that would show the most “correct” time. In fact, time is a rather relative concept, since A. Einstein's STR implies that even the order of events in different frames of reference can change [2]:

“One should not attach absolute importance to the concept of simultaneity. Two events, simultaneous when observed from one coordinate system, are no longer perceived as simultaneous when viewed from a system moving relative to this system”.

Here are two more quotes from Einstein that show the relativity of the concept of “time”.

“For us, convinced physicists, the difference between the past, present and future is nothing more than an illusion, albeit a very intrusive...” [3].

“It cannot be said that time has an absolute meaning, that is, independent of the state of motion of the frame of reference. This is the arbitrariness that was contained in our kinematics...” [4].

Therefore, all arguments about the duration of the existence of our Universe do not make sense, since they contradict Einstein's theory of relativity. After all, when they talk about the age of the Universe, they mean a “universal clock” that does not exist.

Note that quantum mechanics and quantum cosmology also strictly forbid the “universal clock”, or in other words, the evolution of the Universe in time.

It is well known that time is also absent in quantum mechanics and in quantum cosmology. That is, from the point of view of quantum cosmology, the Universe cannot develop. This follows from the fact that the Wheeler-DeWitt equation for the wave function of the Universe is independent of time. To demonstrate this, let us quote A. Linde [5]:

“...First of all, let us pay attention to the fact that the wave function of the Universe depends on the scale factor a , but... does not depend on time. The question arises, how to reconcile this with the fact that the Universe we observe depends on time? Here we are faced with one of the main paradoxes of quantum cosmology, the correct understanding of which is extremely important. The Universe as a whole does not change in time, because the very concept of such a change presupposes the existence of something unchanging, not belonging to the Universe, in accordance with which the Universe develops.

If we understand everything by the Universe, then there is no external observer, according to whose clock the Universe could develop...”.

In fact, when we accept that the Universe exists initially, and is stationary, with various dynamic processes, we go over to the side of materialism. Since the existence of matter and the Universe is accepted a priori, as an axiom. That is, matter and the Universe are primary, and exist objectively and independently of us. Moreover, there is no purpose in the existence of the Universe: the Universe simply exists, and this is an obvious observable fact! From the above, it logically follows that consciousness is secondary, since it appears in certain biological systems during their evolution.

The question of the finiteness of the stationary Universe is also solved quite simply: since the Universe existed from the beginning, that is, there is nothing but the Universe, then it must be infinite in space and time. Consequently, the number of different processes and phenomena will also be infinite. This means that science can never fully study such a Universe. I note that the Universe and matter with this approach are fundamentally cognizable, but since the number of physical processes and phenomena is infinite, an intelligent civilization, in a finite time, will never be able to fully study them.

It is necessary to clarify that a stationary Universe still does not exclude a religious approach, since it can be assumed that God created the Universe, and hence both space and time. And therefore, the Universe exists originally and eternally for us, in this world. That is, the question of what was before the creation of the Universe (or before time was created) does not make sense. Since time and the Universe cannot be separated, after all, space-time is our Universe.

God the creator, in fact, is a materialist, since he created the material Universe, which independently functions according to physical laws without magic and mysticism. Naturally, God is in an ideal, primary world, where our space-time has no special meaning. Speaking in the language of modern theoretical physics, we can say that God is in a parallel Universe.

Surprisingly, the Bible describes the moment when our heaven, that is, space-time, will be rolled up into a small scroll.

Isaiah 34 verse 4:

“And all the heavenly host will decay; and the heavens will roll up like a scroll of a book; and all their host will fall like a leaf falls from a vine, and like a withered leaf from a fig tree”.

This description is very similar to the collapse of extra spatial dimensions in string theory, in which our space is originally 10 or 26 dimensions. All unnecessary dimensions collapse, and only then our 4-dimensional space-time is obtained. Therefore, the ideal world in which God lives can be viewed as a Universe with many dimensions. The theory of the multiverse and the many-worlds interpretation of quantum mechanics also admit an ideal world, since they postulate the existence of parallel Universes that do not interact with each other in any way.

Let us further consider the model of a creationist Universe, that is, a Universe that has a beginning and an end.

2. The creationist model assumes that the Universe was created. Moreover, theoretically, the creator can be either nature or God. But, in fact, both God and nature are synonyms, since there are no fundamental differences.

It is obvious that the act of creation must have a certain duration. In Christianity, it is described that the world was created in 6 days. In the Big Bang theory, our world, that is, galaxies, were created in about 500 million years. The first galaxies formed 300-400 million years after the Big Bang.

If we assume that the Universe was created, then we must explain the purpose of its creation. In religion, this question is solved simply: the Universe is created as a home for humanity. In other creationist theories, the purpose of the creation of the Universe, or in other words, the reason for its formation, is almost impossible to explain. Since we must recognize the existence of matter before the existence of the Universe itself. But, this approach does not lend itself to scientific study, since it allows the existence of matter outside the Universe. This is idealism in its purest form: the ideal world is primary, in which matter initially exists in one form or another, for example, in the form of ideas.

In the Big Bang theory, initially there is a singularity from which the Universe is formed. But, if there is no space and matter, then where is the singularity? Naturally, in an ideal world. In addition, another question arises: where did the singularity come from, what is the reason for its occurrence?

Such questions will always arise in all creationist models, since these models allow for a time (or space) when the Universe did not exist. Therefore, it is much more logical to assume that the Universe existed from the beginning, and will exist forever (stationary model).

The model of a stationary Universe immediately solves the question of the purpose of creation. Since, we accept that the Universe exists originally and eternally, therefore, there is no purpose. The Universe just exists. This is the only assumption, further, we can study the real Universe with completely scientific methods without additional assumptions.

In the models of the creation of the Universe, the reason for the formation will constantly appear in different guises. Therefore, we will constantly be forced to introduce new “ideal” or “dark” entities. For example, in the Big Bang theory, the stage of inflation is taken as fact. That is, it is assumed that inflation existed, and its cause is not considered or studied at all...

We especially note that inflation, like all creationist models of the Universe, contradicts Einstein's STR. Because the stage of inflation assumes that the Universe, or space-time, is expanding “into nothing”. That is, “nothing”, by definition, should be a kind of immaterial space-time. This is idealism. And idealism always contradicts the theory of relativity, which is well tested experimentally.

“Nothing” is an absolute coordinate system, the existence of which is strictly forbidden by Einstein's theory of STR. The essence of special relativity is that there are no absolute coordinate systems. And the Big Bang theory, the stage of inflation, the Multiverse and all idealism in general, are based precisely on the fact that

everything happens in an absolute coordinate system. That is, in an ideal world, or, in other words, in “nothing”.

It is interesting to note that if space-time, or the Universe, is of finite size, then such a Universe is inside “nothing”. And since the existence of “nothing” is impossible, therefore, the Universe is infinite both in space and in time.

CONCLUSION.

Thus, the most reasonable is the assumption that the Universe existed from the beginning, and will exist forever, with a certain closed circuit of matter and energy. This is the only axiom! Further, only theorems follow, which require proof. In my opinion, everything is simple and logical.

To summarize briefly, we discussed the question: has the Universe always existed or does it have a beginning? Instead of an answer, idealism says: first there was an ideal world, then nature (in science) or God (in religion) creates the Universe... But the question remains unresolved: where did the ideal world come from? And how can it be studied and described scientifically? In idealism, there is no answer to this question, since the primary existence of an ideal world is the basic postulate of idealism, both scientific and religious. Materialism answers as follows: since the Universe exists objectively and independently of us, and we know nothing but the Universe, it is logical to assume that the Universe has always existed and will exist forever. And the question of where the Universe came from doesn't make sense.

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