The Universe can be an elementary particle?

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Abstract: The dimension of our space outside the boundaries of the atom - the Solar System, gradually decreases to unity. But, the Universe is an n-dimensional continuum filled with a specific form of matter. Consequently, the space-time continuum is closed at the micro and macro levels, since in both cases it is a one-dimensional world. Given the one-electron model of the Universe, we conclude that the Universe is an elementary particle: an electron.

Keywords: Universe, three-dimensionality of space, elementary particle, one-electron Universe, one-dimensional world, electron.

INTRODUCTION.

It is quite possible that the Universe can be an elementary particle. And what kind of elementary particle we find out at the end. Surprisingly, there are theoretical prerequisites for this...

Let us ask ourselves the question: what is the Universe?

You can answer this way: the Universe is a certain n-dimensional continuum filled with a certain form of matter. Our Universe is a 4-dimensional space-time continuum with matter.

Now let's remember the work of Paul Ehrenfest "In what way does it become manifest in the fundamental laws of physics that space has three dimensions?" (1918), in which he substantiates the three-dimensionality of our space [1, 2]:

"...the dimension of space, previously assumed a priori equal to three, was first subjected to physical analysis and received the status of a physical (empirical) concept.

At the same time, Ehrenfest's work set the limits within which our confidence in the three-dimensionality of space is justified: these limits extended from the scale of the atom to the size of the Solar System.

Below and above these boundaries, when expanding the field of studied phenomena, it is required to conduct a separate study of the issue of dimension...".

As we showed earlier, elementary particles are a two-dimensional world [3]. Moreover, space and time are equivalent [4]. And this means that for the emergence of even a two-dimensional world, only one-dimensional space is needed, and due to the equivalence of space and time, it will automatically lead to the two-dimensional world of elementary particles, and then to the three and four-dimensional world. One-dimensional space can be the true reason for the existence of elementary particles.

Therefore, at the most fundamental level, our world may well be one-dimensional. Further - the two-dimensional world of elementary particles, then we get the 4-dimensional space-time continuum of Ehrenfest. I specifically emphasized that this is the Ehrenfest continuum, since he indicated the limits of such a world: from the atom to the Solar System (inclusive).

RESULTS AND DISCUSSION.

And now, let's ask ourselves the question: what kind of world exists outside the Solar System?

Actually, it is obvious that galaxies are actually two-dimensional systems. They rotate like solid two-dimensional discs...

Now let's remember the scattering of galaxies: this is a transition to a one-dimensional world... just like the quantum world at a fundamental level. Moreover, this confirms the effect of the field retardation and the curvature of the space-time continuum of galaxies and further, on the scales of galaxy recession [5]:

"”...In this approximation, the retarded potential effect is compensated by the dependence of the gravitational field on the mass motion, which eliminates the Laplace order...”.

...In other words, if we have a system of masses (for example, a galaxy), then this system in a certain way curvature the space-time continuum, which expresses the metric tensor corresponding to this curvature in accordance with general relativity.

That is, if the mass system is large (for example, a galaxy), then in order to compensate for the retarded potential effect (in other words, the field lag), the masses will need to increase the speed, which is observed with the rotation speeds of the outer regions of galaxies. Naturally, the larger the distance at which the interaction takes place (if other components are equal), then the field delay will be stronger and the masses will be more accelerated, and therefore an anomalous increase in the rotation rates of the outer regions of the galaxies is noticed. If there were no increase in the velocities of mass motion, then the speed of gravitational interaction (between masses in the given system) would be greater than the speed of light, and according to the general theory of Einstein this is impossible, hence the effect of mass acceleration.

This effect of accelerating the masses to maintain a constant rate of gravity will be manifested with a significant curvature of space-time, and at considerable distances (that is, at astronomical objects).

Moreover, if we mentally increase grandiose objects like galaxies and move to the next level, that is, we will consider the universe, then it is easy to understand that in such a transition the mass velocities will be so large that in this case the masses will break from their circular (elliptic) orbits, and begin to move away from each other with constantly increasing velocities (this follows from the condition of maintaining a constant speed of gravitational interaction, because the distances will constantly increase). And now, if we accept that our masses are galaxies, then we will get an expanding model of the universe, with a constant increase in the velocities of galaxies.

...The greater the distance between the masses, the greater the effect of delay of potentials and the greater the change in the velocity of the masses and the space-time metric, which means that attraction will smoothly turn into repulsion between the masses...

A delay of potentials (backlog of field) is the effect known for more than 100 years...

The bottom line is that if we consider a three-dimensional space (more precisely, the projection of a 4-dimensional to 3-dimensional space), then there will be no "field delay", but a deformation of the gravitational field...

It is also interesting that the "deformation" addition of the energy of the field of a moving charge (charge-mass or charge) in comparison with the resting charge turned out to be equal to the kinetic energy of the charge motion...

Hence it is obvious that the bigger the field lag, the greater the velocity of the gravitational charge-mass, which confirms dispersal of galaxies with increasing acceleration".

If we accept that the Universe is a kind of n-dimensional continuum with matter, then the one-dimensional world at the micro and macro levels should be one world. Since both there and there, we have a one-dimensional world with matter. Therefore, they are one and the same world. That is, the quantum world at the fundamental level and the Universe at the macro scale are one and the same. And this means that the Universe is an elementary particle, inside which we are.

With this approach, it turns out that Universe automatically leads to the birth of an incredible number of other Universes, because each Universe consists of a large number of elementary particles. Such a device of the Universe is very similar to a Matrix, when there is one real Universe, and it gives rise to an infinitely large number of virtual Universes.

But, in the real world, everything is not so simple. There is a theory of a one-electron Universe, in which all electrons are one electron, located alternately at different points in space (at different times).

Therefore, it can be assumed that if all electrons are one electron, is it possible that the whole Universe is just one electron?

And quarks and other elementary particles can be a kind of derivative of a given electron (in time, in space, in measurements, etc.), just as a positron appears in this Universe (see below).

The founder of the one-electron Universe model is a student Richard Feynman with his professor John Wheeler, telephone conversation at Princeton in the spring of 1940 [6]:

“...In his Nobel Prize speech, Feynman recounts the story as follows:

"Feynman - Wheeler said, - I know why all electrons have the same charge and the same mass".

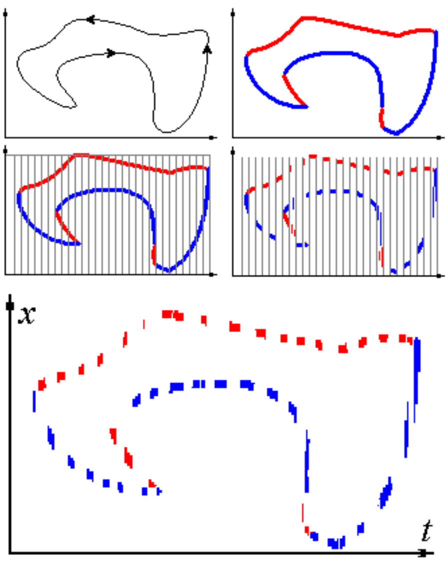
"Why?" - Feynman asked.

"Because - Wheeler replied - they are all the same electron!"

In 1948, Richard Feynman developed a mathematical approach to quantum theory in which the antiparticle was viewed as a particle moving backward in time.

…Consider, for simplicity, a two-dimensional Universe - one axis of space and one axis of time. Let's draw an arbitrary curve in space-time. Let us indicate the direction of traversing this curve. Select two parts of this curve: the part that goes to the right (blue line) and the part that goes to the left (red line). These colors correspond to the electron and positron.

We fragment time: we divide the time axis into many components, while the step of partitioning can be different. Let's select only one component of the curve on each strip. Having done all this, we have a Universe in which at each moment of time there is always only one electron, while it may seem that there are several of them (in the figure, this number reaches four)”.



Therefore, it is enough to create one electron, and it will give rise to the real Universe, which we observe. Moreover, there will not be an endless series of nested Universes, since our Universe is just one elementary particle - one electron.

CONCLUSION.

As Ehrenfest pointed out, our four-dimensional space-time continuum extends from the atom to the Solar System. And at distances greater than this, and less than this, the dimensionality gradually decreases to two, and then to one: the topology of the space-time continuum changes, and this continuum closes on micro and macro scales.

The fundamental quantum world and the mega-scale of the Universe merge as it is one one-dimensional world. One electron. One Universe. Infinitely large, real Universe. And an infinitely small, real elementary particle!

By the way, it is for this reason (because of their size) that elementary particles in quantum mechanics are taken for point objects. In fact, they have no size, their radius tends to zero, that is, if we try to measure the "radius" of an elementary particle, then it will always be less than the capabilities of the device, because otherwise (if they had a real radius), there will always be a certain energy that can break this elementary particle into fragments. This means that our elementary particle can no longer be considered truly elementary.

Everything is mirror-like with the Universe. If the Universe is finite, then it must have a certain "end of the world", the end of the space-time continuum, which in itself is nonsense, since this directly contradicts Einstein's STR. Because behind the real Universe there must be an intangible "nothing" that cannot be described and studied, and which, at its core, is an absolute coordinate system.

Consequently, elementary particles must have an infinitely small radius, and the Universe must have an infinitely large size. And these two infinities are one world. One particle. One Universe.

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