

## THE SUBQUANTUM LEVEL OF THE ORGANIZATION OF MATTER

Physicists assume that atoms are the lowest level of the organization of matter. In the study "Step by Step to Model 31", it is shown not to be true. It has been shown that on the subatomic level, there are also two more levels of the organization of matter. The lower level is the world of energy quanta, while the lowest, subquantum level of the organization of matter is dark energy. If all atoms and energy quanta were removed from the Universe, there would only remain the space filled with one-dimensional, constantly moving particles of dark energy. Dark energy uniformly fills the Universe and penetrates all bodies. It is the source of field lines, energy quanta, atoms; it is the primary source of everything.

The assumption that dark energy is the primary source of everything is more convincing than the current view that the universe was created:

- no one knows what from,
- no one knows how,
- no one knows what made it move and what keeps it moving.

The assumption of the existence of dark energy as the primary source of everything becomes even more convincing if, step by step, the evolution of dark energy is presented, that is:

- how energy quanta were produced from dark energy,
- how electrons and positrons were created from quanta,
- how atoms were built from electrons and positrons,
- how bodies were made from atoms.

This is made by Model 31.

Physicists do not question the existence of dark energy. In a cosmic scale, dark energy is supposed to dominate other forms of matter, such as dark matter or atomic matter. Dark energy would be uniformly distributed in the whole space, without gathering around such structures like galaxies, galaxy clusters, or superclusters. The latest research performed by the Planck satellite shows that it makes 68.3% of the total energy of the Universe. Other names which may better reflect the essence of dark energy are vacuum energy or zero-point energy. However, so as not to create new beings, the concept of dark energy should be replaced with already existing from ancient times the concept ETHER.

**DARK ENERGY = ETHER**

The concept of dark energy as ether is perfectly illustrated by J. C. Maxwell's statement:

"... there can be no doubt that the interplanetary and interstellar spaces are not empty, but are occupied by a material substance or body, which is certainly the largest, and probably the most uniform body of which we have any knowledge."

Physicists are at the intellectual crossroads when it comes to dark energy and ether. On the one hand, they recognize the existence of dark energy, whose reservoir is space itself, they even precisely indicate the amount of it, on the other hand, they do not recognize the existence of ether, which should have exactly the same properties as dark energy.

Let us also seek evidence for the existence of dark energy.

1. Each material body, always and everywhere, emits a form of energy (energy quanta), while the body does not diminish, so it is not the source of this matter. The issue becomes clear and logical if we assume that one form of matter (atomic) produces another form of matter (energy quanta) from a third form of matter (dark energy). Energy quanta prevent all atoms from bonding into a single firm body, thus, they ensure the existence of the Universe in its present form.

2. Thermal radiation of a given body in a certain temperature, that is the production and emission of energy quanta, is not dependent on the presence of other bodies. It was already stated in 1791 by Pierre Prévost, one of the first scientists experimenting on thermal radiation. Thus, any body isolated from other bodies somewhere in space will continue to emit energy quanta. Without assuming the existence of dark energy, it will be impossible to answer the question why this is happening..

3. Dark energy in the "vacuum" of space gives energy quanta a constant speed of about 300 000 km/s. A light ray, while entering a glass surface, strikes against the quantum gas of glass, which has a greater density than the quantum gas of the vacuum of space. It causes a deceleration of light ray quanta to about 200 000 km/s. After leaving the glass, the ray is in the vacuum of space again, so once again particles of dark energy accelerate light ray quanta to 300 000 km/s. If energy quanta did not have a ubiquitous drive in the form of particles of dark energy, it would be impossible to explain the return of energy quanta to the original velocity after their leaving the glass.

4. If atoms are set in motion by energy quanta, and energy quanta are set in motion by particles of dark energy, then the question raises. What is the driving force for particles of dark energy? In order to explain this, we will use a pinch of mathematics. The most general form of the Coulomb and Newton's law is as follows.

$$F \sim \frac{x_1 \times x_2}{r^{n-1}}$$

F - force of interaction,

x - number of carriers creating interactions within the bodies,

r - distance between the bodies creating interactions,

n - number of dimensions of the carrier creating interactions.

In Model 31:

carriers of electrostatic interaction are electrons and positrons,

carriers of magnetic interactions are electrons,

carriers of gravitational interaction are neutralized protons.

It follows from the structure of these particles presented in Model 31 that they are three-dimensional. Taking account of this in the above formula, it follows:

$$F \sim \frac{x_1 \times x_2}{r^{3-1}} \sim \frac{x_1 \times x_2}{r^2} \sim \frac{x_1}{r} \times \frac{x_2}{r}$$

Since for two elementary charges  $x_1 \times x_2 = 1$

$$F \sim \frac{1}{r^2}$$

This means that the force of interaction between two elementary charges of electrostatic, magnetic, and gravitational field decreases with the square of the distance of these charges from each other.

It follows from the structure of energy quantum presented in Model 31 that it is flat, two-dimensional. Taking account of this in the starting formula, it follows:

$$F \sim \frac{x_1 \times x_2}{r^{2-1}} \sim \frac{x_1 \times x_2}{r^1} \sim \frac{x_1}{\sqrt{r}} \times \frac{x_2}{\sqrt{r}}$$

Since for two quanta  $x_1 \times x_2 = 1$

$$F \sim \frac{1}{r^1}$$

This means that in the world of energy quanta forces of interaction between two quanta decrease with the first power of the distance of these quanta from each other.

It is clearly shown from Model 31 that particles of dark energy are one-dimensional. Taking account of this in the starting formula, it follows:

$$F \sim \frac{x_1 \times x_2}{r^{1-1}} \sim \frac{x_1 \times x_2}{r^0} \sim \frac{x_1}{r^0} \times \frac{x_2}{r^0}$$

Since for two particles of dark energy  $x_1 \times x_2 = 1$

$$F \sim \frac{1}{r^0} \sim \frac{1}{1}$$

This means that in the world of dark energy the force of interaction between its two particles decreases with the zeroth power of the distance between them, so it is not dependent on the distance between them. Translating this into the language of physics. Particles of dark energy move in the perfect vacuum, that is with no resistance to motion, and their collisions are elastic. Dark energy, three-dimensional space, and time have always existed. Energy quanta were created from dark energy, whereas atoms were created from energy quanta. Dark energy is what everything was created from. Thus, there is no need to ask the question. What makes particles of dark energy move and what keeps them moving?

**Dark energy (ether) is the source of all matter and all motion.**

**The Universe is deterministic.**

**Dark energy built a theater on whose stage we can see a show titled The Universe. Dark energy also plays the main role in it and is the director as well. In the very last detail it sets out the roles of all actors who take part in the show, those greatest (galaxies) and those smallest ones (energy quanta).**

**The Universe is not a perpetuum mobile.**

**One form of matter (atomic), in order to exist, has to produce another form of matter (energy quanta) from a third form of matter (dark energy). This means that the existence of the Universe is conditioned upon "combustion of the fuel", which is dark energy (ether). In its present form the Universe had a beginning and will have an end.**

**The Universe has an absolute system of reference.**

**The existence of dark energy means that there exists a preferred system which can be referred to in a description of the Universe, that is among all reference systems there is a preferred one, thus there exists an absolute system of reference.**

The lack of knowledge on the existence of the world of dark energy (and the world of energy quanta) gave rise to three branches of physics alternative to the classical physics. They are the general and special (GTR, STR) theory of relativity, quantum mechanics (QM), and the particle physics called the Standard Model (SM). They are completely new beings in physics, independent one from another and from the classical physics. They all usurp the right to be superior to the classical physics, although they are only its prostheses.