

THE ISSUE OF DEFINITIONS – TIME, UNIVERSE AND MASS

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A new *understanding* of the basic physical terms has been proposed on the basis of the analysis of the latest publications on the structure of the Universe, dark matter and energy, «buons» without spin and “quints” with spin 3. The principle of “the easier, the better” has been used in this approach.

*“Give the right definition to the words and you
will avoid 50% of wars”
Voltaire*

TIME

Frederick Engels was incorrect when he wrote that “The basic forms of all being are space and time, and there is no being out of space and time.” He, however, contradicted himself by this statement. According to dialectical materialism which is an inseparable part of his own philosophy, the **Universe** is the matter and its motion. **Motion**, in other words, is simply a movement along the world line in **4M** space where all of us exist. **Time** is an artifact that was made up for convenience not that long ago. This artifact may even interfere with serious theoretical work. Therefore, Frederick Engels could have been right only if he meant the human society as existence with its still underdeveloped second signaling system (per Pavlov). If one considers the existence of the Universe, which is independent from the human perception, such existence does not depend on either human being, or God. (As a materialist, Frederick Engels should not have accepted the fact of God’s existence). Einstein was right when he postulated that **c**, the speed of light in vacuum, was constant and finite. However, at that time Einstein was unable to discard the idea of **TIME**. Constant **C** equals to 300,000 km and may serve as the spatial transition (displacement) measure. In this case, coefficient **β** (which equals to $\beta = v/c$ in the timelike dimension) changes within 0 to 1, and the displacement of the material body for the given distance **D** in the gravitational field can equate to $D = \beta C$. In this case, time disappears in Poincare’s **4M**-space. With that the issue of hours, twins, etc. disappears as well as there is no measurement subject (for science, not for the modern human society). The modern society still requires that humans have watches, money, citizenship, registration, etc. While everything changes and nothing is constant, many scientists still believe that time originated in the same place and at the same time with the “Big Bang” about 13.7 billion years ago. They completely ignore that the “Big Bang” is only a **hypothesis** proposed by Georgy Gamov in 1951. Our ancestors, too, got interested in the concept of time after they got a chance to think of other things than food. In the fifth century A.D., St. Augustine answered the question “What was God doing before he created the Universe?” Augustine pointed out that God did not bring creation into being at a certain definite moment in time, because time did not exist prior to creation. For Augustine, eternity is a realm without space or time. As the majority of physicists are atheists, there is no time in the Universe or the Creator and there will never be any.

SPACE

Thanks to Grisha Perelman, the topological task of the **3M**-sphere existence in the **4M**-space was solved. This problem was initially set by Henri Poincare in 1904. For almost fifteen years, I have been asking my colleagues whether there is an analogue of the Mobius band in the **4M** space. Being an “amateur”, I was not aware of the fact that this was the exact problem set by Poincare! Per the calculations of the light beam deviations in the vicinity of the celestial bodies (Sun), the circumference diameter for the photon movement to the start point was calculated. The diameter turned out to be equal to 700 billion light years (note, that in our case the light year is *distance*, not time), or about 7×10^{24} km. No matter where we are in this space, the center of this space will be close to us. I remember my conversation, about ten years ago, with V.S. Imshennik, a famous astrophysicist and a brilliant mathematician, when I shared with him a computer map of the Universe based on the astronomical observations. This was a disk with a small bulge on the right wing (Dwarf galaxy) and a small spot of Via Lactea, our galaxy, located in the second half of the right radius of the “visible” Universe. The answer to my question about the exact location of the “Big Bang” that originated the expanding Universe was astonishing. “We, the astrophysicists, have a lemma – the “Big Bang” originated in the observer’s point.” To that I could only reply that I would rather believe in God than in what you just said. However, ten years after I came to the same conclusion on the basis of the analysis of the latest publications and a new approach to the physics of the processes in the Universe. Let me note, that such global approach is used to solve many problems of the high energy physics and the issue of the Great Consolidation of all the known forces (such as electromagnetic, nuclear, weak and gravitational) is no longer there. To be more precise, the first three forces turn out to be derivatives of the gravitational field, thus making the search for “gravitons” pointless. There is no longer any need to attract esoteric “dark energy” or “black matter” that show up in certain serious scientific journals which speak to the crisis of the modern science in the early 21st century (similar to the crisis of the early 20th century).

MASS

There is a good definition in the Big Soviet Encyclopedia (BSE) - "The nature of the mass is one of the most important unresolved problems of modern physics." One can certainly leave the discussions of the issue of mass aside, following the advice offered by one of the panelists, and agree with various definitions of the mass in GTR (General Theory of Relativity) and STR (Special Theory of Relativity). However, I would rather follow a Russian proverb, "Under a lying stone the water doesn't flow," or "You cannot make an omelet without breaking eggs" and speculate a little. For example, if one assumes that C is not the velocity in $E=mc^2$ but a unit of maximum permissible step of transfer of the material body ($\beta=1$), without any environmental perturbation, that is equal to 300,000 km (the gravitational field wavelength), E will be the energy that is required to transport this material body for distance C in the gravitational field of the Universe. In this case, one can understand Oscar Wilde's paradox - "The faster you go, the slower life is." According to the latest estimates, the "perceivable" mass of our Universe is only about 4%. It includes stars, planets, space dust, hydrogen and helium, etc. which, however, do not control the phenomenon of gravitation in Universe. It is difficult for me to agree with the current opinion (statements made by certain learned scholars) that "the gravitational attraction, in intergalactic scale, is in the past and will never come back." Never say never again! It is quite possible that "black holes" are the areas of mass transformation into the gravitational field (similar to electrons and photons) and vice versa, i.e. the formation of new constellations under the gravitational field perturbations serves to align inhomogeneities in $3M$ -sphere during the structural transitions - matter - antimatter. In general, the discussions of this problem should continue, and not only in serious scientific journals.

Over 2000 years ago, Lucius Seneca wrote that "...our descendants will be amused to learn that we were not aware of many concepts that seem so common to them...Many inventions are meant for future centuries...The nature does not disclose its secrets once and for all." I would like to add a brief comment to the "oracular utterances" of Seneca (who, by the way, was the Emperor Neron's teacher), i.e. the words of Lev Artsimovich, a man of wisdom and my teacher, "The nature does not have an evil intent to hold back any secrets from man. The number of such secrets is limited!" I can only add that this is because the Nature does not have any Reason!