

THE STRING THEORY IS THEORY OF EVERYTHING
Portnyi B.S., Ilchenko T.O.
*National Technical University «Kharkiv Polytechnic Institute»,
Kharkiv*

In this paper work the issue of relevancy and signification of the String Theory is considered. The main problems and perspectives are shown. The String Theory is one of the more dynamically developed physical theories in the 21st century. Until now, we do not know the precise size of our Universe, the reason for its origin, the exact number of dimensions, which is often fluctuating.

As it is known, in the world there are 4 interactions: gravitational, electromagnetic, strong and weak. All of them are described by formulas. The problem is that we cannot connect them mathematically into one formula "Theory of everything". When this problem is solved we will know the exact answers to the questions concerning the origin of the Universe and not only.

The String Theory is the direction of theoretical physics, studying the dynamics of interaction of non-point particles, but one-dimensional extended objects, so-called quantum strings. The String Theory is based on the hypothesis that all elementary particles and their fundamental interactions arise as a result of vibrations and interactions of ultramicroscopic quantum strings on the scales of the order 10^{-35} m of Planck length. This approach leads to a rooted view of the structure of matter and space-time. At its core, the String Theory denies the Big Bang Theory and claims that the Universe has always existed. That is, the universe was not an infinitesimal point, but a string with an infinitely small length, while the string theory says that we live in a ten-dimensional space, although we can feel only 3 or 4. The rest dimensional spaces exist in a collapsed view.

The String Theory was considered by such famous scientists as Michael Green and John Schwartz, Gabriele Veneziano, Stephen Hawking, Albert Einstein, Edward Witten, Max Tegmark, Martin Rees, Erwin Schrödinger, Alan Guth and many others.

Kip Thorne says: "By 2020, physicists will have already understood the laws of quantum gravity, and it will come to be obvious that they are a variant of String Theory".

To conclude, it should be mentioned when studying the String Theory, scientists from different countries are encountering from time to time a whole range of problems and unsolved problems. The most important point can be the lack of mathematical formulas, so it is not possible to give a complete view to the theory till now. Also, the presence of 10 dimensional spaces, while we feel only 4 of them is the penetrating question. Therefore, the study of the String Theory is continuing uninterruptedly, and the result of numerous experiments, including tests at the Large Hadron Collider, may be missing concepts and elements.