

## SCIENTIFIC AUTHENTICITY CRITERIA

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**Announcement.** A colligation of scientific results in the 21st century has reached a level that provides an opportunity to find and to systematize the scientific authenticity criteria of precise knowledge already gained by mankind.

It is safe to say that the authority of the foregoers is a key factor in the scientific result authenticity for the majority of scientists of the 20th century. Albert Einstein is the leader of them. All other scientists who have made much greater contributions into the treasury of scientific knowledge lived in the shadows, and their achievements were almost completely ignored. [1-3].

But not everybody agreed with the fact that the authority of a scientist is a safe indication of the authenticity of scientific results gained by him. Many scientists cannot agree with the absurd consequences resulting from the so-called scientific achievements of Albert Einstein, and criticism about him became prevalent in the scientific world rather quickly. It affords us grounds for elimination of the authority of any former, present and future scientist from a list of scientific authenticity criteria and makes it possible to establish a genuine dimension of estimation of the results of scientific investigation. A level of knowledge being accumulated allows us to solve this problem in the first approximation.

Euclid, who established a body of scientific knowledge in the 3rd century before Christ, is a founder of the formation of authenticity criteria for scientific results. He was the first to pay attention to the necessity of giving a precise definition of scientific knowledge, because it is impossible for all investigators to have a similar understanding of the essence of a phenomenon or a process being analyzed. We admire his definition of the notion of a mathematical point having no parts as an object of scientific analysis. The next important service by Euclid is an introduction to the notion of an axiom and a postulate as the dimensions of estimation of scientific results. The axioms as determined by Euclid, remain the safest foundation for all exact sciences.

Nearly two thousand years passed before the next scientific tractate appeared; in it, great attention was paid to a definition of scientific notion and the application of axioms and postulates in order to prove the authenticity of a scientific result. Isaac Newton did it in his famous colligating scientific tractate “Mathematical Principles of Natural Philosophy” being published in the year of 1687. It is a pity that Newton made an omission having said that he did not invent hypotheses. It appeared from this that he represented scientific truth. Now we know that it is an error, and authenticity of it has strengthened greatly in the year of 2009 when the impropriety of his first law has been proven.

A question arises: why has it happened? An answer is obvious to us. Neither Euclid, nor Newton gave precise definitions of the notions of an axiom, a postulate and a hypothesis. As a result, Newton called his laws the axioms, but it was in conflict with the Euclidean ideas concerning the essence of the axioms. In order to eliminate these contradictions, it was necessary to give a definition not only to the notions of the axiom and the postulate, but also to the notion of the

hypothesis. This necessity is stipulated by the fact that any scientific research begins with an assumption regarding the reason causing a phenomenon or process being studied. A formulation of this assumption is a scientific hypothesis.

Thus, the axioms and the postulates are the main criteria of authenticity of any scientific result.

**An axiom is an obvious statement, which requires no experimental check and has no exceptions.** Absolute authenticity of an axiom appears from this definition. It protects it by a vivid connection with reality. A scientific value of an axiom does not depend on its recognition; that is why disregarding an axiom as a scientific authenticity criterion is similar to ineffectual scientific work.

**A postulate is a non-obvious statement, its reliability being proven in the way of experiment or a set of theoretic results originating from the experiments.** The reliability of a postulate is determined by the level of acknowledgement by the scientific community. That's why its value is not absolute.

**A hypothesis is an unproven statement, which is not a postulate.** A proof can be theoretical and experimental. Both proofs should not be at variance with the axioms and the recognized postulates. Only after that, hypothetical statements gain the status of postulates, and the statements, which sum up a set of axioms and postulates, gain the status of a trusted theory.

The first axioms were formulated by Euclid. Here are some of them:

- 1 - To draw a straight line from any point to any point.
- 2 - To produce a finite straight line continuously in a straight line.
- 3 - That all right angles equal one another.

Euclidean formulation concerning the parallelism of two straight lines proved to be less concise. As a result, it was animadverted and analyzed in the middle of the 19th century. It was accepted that two parallel straight lines cross at infinity. Despite a complete absence of evidence of this statement, the status of an axiom was attached to it. Mankind paid a lot for such an agreement among the scientists. All theories based on this axiom proved to be faulty. The physical theories of the 20th century proved to be the principal ones among them.

In order to understand the complicated situation being formed, one has to return to Euclidean axioms and assess their completeness. It has turned out that there are no axioms, which reflect the properties of the primary elements of the universe (space, matter and time), among those of Euclid. There are no phenomena, which could compress space, stretch it or distort it, in the nature; that is why space is absolute. There are no phenomena, which change the rate of the passing of time in nature. Time does not depend on anything; that's why we have every reason to consider time absolute. The absolute nature of space and time has been acknowledged by scientists since Euclidean times. But when his axiom concerning the parallelism of straight lines was disputed, the ideas of relativity of space and time as well as the new theories, which were based on these ideas and proved (as we noted) to be faulty, appeared.

A law of acknowledgement of new scientific achievements was introduced by Max Planck. He formulated it in the following way: "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it". Our attempt to report the reliability of this law to the authorities is in the history of science an unnecessary intention.

Certainly, time appeared in space only after matter. But still we do not know of a source that produces elementary particles – building blocks of the material world. That's why we have no

reason to consider matter absolute. But it does not prevent us from paying attention to an interconnection of the primary elements of the universe: space, matter and time. They exist only together and regardless of each other. This fact is vivid, and we have every reason to consider an indivisible existence of space, matter and time as an axiomatic one, and to call the axiom, which reflects this fact, the **Unity axiom**. The philosophic essence of this axiom has been noted long ago, but the practitioners of the exact sciences have failed to pay attention to the fact that it is implemented in the experimental and analytical processes of cognition of the world. When material bodies move, the mathematical description of this motion should be based on the Unity axiom. It appears from this axiom, that an axis of motion of any object is the time function. Almost all physical theories of the 20th century are in conflict with the Unity axiom. It is painful to write about it in detail.

Let us go on analyzing the role of postulates as scientific authenticity criteria. First of all, let us recollect the famous postulate by Niels Bohr concerning the orbital motion of the electrons in atoms. This catchy model of the process of the interaction of the electrons in the atoms goes on being formed in the mind of the pupils in school despite of the fact that its impropriety has been proven more than 10 years ago.

The role of Niels Bohr's generalized postulate is great. Practically, it is used in the whole of modern chemistry and the larger part of physics. This postulate is based on the calculation of the spectrum of the hydrogen atom. But it is impossible to calculate the spectrum of the first orbit of the helium atom (which occupies the second place in Mendeleev's table,) with Bohr's postulate, to say nothing of the spectra of more complicated atoms and ions. It was enough to dispute the authenticity of Bohr's postulate, but the mission of doubt has fallen to our lot for some reason. Two years were devoted to decoding the spectrum of the first electron of the helium atom. As a result, the law of formation of the spectra of atoms and ions has taken place as well as the law of the change of binding energy of the electron with the protons of the nuclei when energy-jumps take place in the atoms. It has turned out that there is no energy of orbital motion of the electrons in these laws; there are only the energies of their linear interaction with the protons of the nuclei.

Thereafter, it has become clear that only elementary particle models can play the role of the scientific result authenticity criteria in cognition of the micro-world. From the analysis of behaviour of these models, one should derive the mathematical models, which have been ascertained analytically long ago, and describe their behaviour in the experiments that have been carried out earlier.

The ascertained models of the photons of all frequencies, the electron, the proton and the neutron meet the above-mentioned requirements. They are interconnected with each other by such a large set of theoretical and experimental information, whose impropriety cannot be proven. This is the main feature of the proximity to reality of the ascertained models of the principle elementary particles. Certainly, the process of their generation has begun from a formulation of the hypothesis concerning their structures. Sequential development of the description of these structures and their behaviour during the interactions extended the range of experimental data where the parameters of the elementary particles and their interactions were registered. For example, the formation and behaviour of electrons are governed by more than 20 constants.

We have every reason to state that the models of the photons, the electron, the proton and the neutron, which have been ascertained by us, as well as the principles of formation of the nuclei, the atoms, the ions, the molecules and the clusters already occupy a foundation for the postulates, and new scientific knowledge will cement its strength.

Science has a rather complete list of criteria in order to estimate the authenticity of scientific investigative results. The axioms (the obvious statements, which require no experimental check and have no exceptions,) occupy the first place; the second place is occupied by the postulates. If the new theory is in conflict with at least one axiom, it will be rejected immediately by the scientific community without discussion. If the experimental data, which are in conflict with any postulate (as it happened, for example, to the Newton's first law), appear, the future scientific community, which has learned a lesson from scientific cowardice of the academic elite of the 20th century, will submit such a postulate to a collective analysis of its authenticity.

#### CONCLUSION

To the academicians who have made many mistakes in knowledge of the fields of physics and chemistry, we wish them to recover their sight in old age and be glad that these mistakes are already amended. It is time to understand that a prolongation of stuffing the heads of young people with faulty knowledge is similar to a crime that will be taken to heart emotionally in the near future.

#### REFERENCES

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