ISSN: 2350-0328
International Journal of Advanced Research in Science, Engineering and Technology
Vol. 7, Issue 1 , January 2020

Electromagnetic Picture Of The World

Kasimov Asroriddin Sadievich, Niyazov Shohrukhjon Komiljon ugli

Head of the Department of Physics, Termiz State University,
The student of Termiz State University

ABSTRACT. In this article, the creation of the theory of relativity not only completes classical physics, but also opens the era of new modern physics. In the same years, another great theory of the twentieth century was created. - quantum theory and the modern quantum-field picture of the world begins to take shape.

KEYWORDS: picture, principle, continuity, motion, energy, electromagnetic, arose, charged, interaction, relativity, law, regularity.

I.INTRODUCTION

Since the beginning of the nineteenth century the doctrine of electrical and magnetic phenomena begins to develop rapidly. Coulomb, Ampere, Bio, Laplace discover the quantitative laws of electromagnetism; a connection between electrical and magnetic phenomena (Oersted, Ampere) is detected. The influence of mechanical ideas about the world in this era is still very strong. This, in particular, is manifested in the fact that the Newtonian concept of long-range action is the basis of the doctrine of electromagnetism. However, attempts (for example, by Weber) to create a unified theory of electromagnetic phenomena phenomena based on this concept meet a number of difficulties. In this regard, the concept of short-range action begins to make its way.

For the first time in the most distinct form it manifests itself in the works of Faraday, who expressed new ideas, according to which electromagnetic interactions are carried out through the field and are transferred from one charge to another with a finite speed. The ideas of Faraday are developed and mathematically put into order by Maxwell. This theory so consistently and uniformly explained all electromagnetic phenomena on the basis of the idea of an electromagnetic field, that over time there was a hope to explain all physical phenomena on the basis of the laws of electromagnetism and to imagine a world built of electrically charged particles of matter interacting with each other through an electromagnetic field, even charged they tried to imagine particles as “field clumps”. In the second half of the nineteenth century. Thus, an electromagnetic picture of the world appeared (Faraday, Maxwell, V. Thomson, Lorentz). The main provisions of the electromagnetic picture of the world include, in particular, the following.

1. Matter exists not only in the form of particles, but also in the form of an electromagnetic field. This means that the idea of discreteness of matter has been replaced by the idea of continuity (continuity) of matter. An electromagnetic field is the main element of the physical picture of the world in this era.

2. The movement of matter is carried out not only in the form of moving particles, but also in the form of propagation of electromagnetic waves.

3. The interconnection of objects is carried out not only through electromagnetic interaction, which is transmitted from one point to another with a finite speed (short-range interaction).

4. The dominant role in natural phenomena belongs to the laws of electromagnetism.

5. Representations of classical mechanics about space and time in the nineteenth century. Still persist, but attempts to detect motion relative to the ether, which was considered an analog of absolute space, are unsuccessful.

6. Laplacean determinism has not yet been discarded, but a statistical approach is already being used in physical theory; this creates the prerequisites for the emergence of a probabilistic approach to the concept of causality.

The final step in the construction of the electromagnetic picture of the world was the creation of the theory of relativity, which affirmed the idea of the independent existence of the field as a type of matter and required a radical change in the views on motion, space and time.

The creation of the theory of relativity not only completes classical physics, but also opens the era of a new modern physics. In the same years, another great theory of the twentieth century was created. - quantum theory and the modern quantum-field picture of the world begins to take shape. The birth of modern physics took place with great difficulty, as it required a revision of many classical ideas and a change in the style of thinking. That is why this era is called the revolution in physics.

ISSN: 2350-0328

International Journal of Advanced Research in Science, Engineering and Technology

Vol. 7, Issue 1 , January 2020

REFERENCES

1. Shakhmaev N.M. Some questions of the methodology of studying the electromagnetic field in high school. Proceedings of the APN of the RSFSR, 1959. No. 106.
2. Shafrin F.Sh. Some difficult issues of teaching physics. - M: Enlightenment, 1966.hshege.