



Journal Website:
<https://theusajournals.com/index.php/ajast>

Copyright: Original content from this work may be used under the terms of the creative commons attributes 4.0 licence.

ON THE NATURE OF TIME AND ITS VARIOUS PHYSICAL THEORIES PERCEPTION

Submission Date: October 20, 2024, Accepted Date: October 25, 2024,

Published Date: October 30, 2024

Crossref doi: <https://doi.org/10.37547/ajast/Volume04Issue10-22>

Kosimova Yanglish Bakhtiyarovna

Jizzakh State Pedagogical University, teacher of the department "Physics and its teaching methodology",
Uzbekistan

ABSTRACT

Time is one of the most important and mysterious concepts for mankind. It plays an important role in the lives of each of us, it is widely used in many scientific fields, especially in physics and philosophy, but there are many questions about its true nature. This article discusses the perception of time in physical theories and its basic concepts, and compares the concepts of time in classical mechanics, relativity theory, and quantum mechanics. Specific characteristics of time in each theory and its influence on physical processes are considered. It also discusses the nature of time, its disappearance, and theoretical disagreements. The study brings together the philosophical and scientific aspects of the concept of time, offering a new perspective for those interested in learning.

KEYWORDS

Time, physics, mechanics, classical physics, theory of relativity, quantum mechanics, philosophy, understanding, physical processes.

INTRODUCTION

A change in the position of bodies or body parts relative to each other is called mechanical motion. Mechanics is the branch of physics that studies the laws of mechanical motion and the causes that create and change this motion.

Mechanics is divided into classical, relativistic and quantum mechanics, depending on the size and speed of the studied objects.

Classical mechanics studies the laws of motion of macrobodies whose velocities are much smaller than the speed of light in space. The basic laws of classical mechanics were determined by the Italian physicist

and astronomer G. Galileo and were perfectly explained by the English scientist I. Newton.

Relativistic mechanics studies the laws of motion of bodies moving at speeds close to the speed of light in space. Relativistic mechanics is the mechanics created on the basis of A. Einstein's special theory of relativity.

Quantum mechanics studies the laws of motion of micro-bodies (atoms and elementary particles).

Above, we gave brief information about the mechanical departments. Now let's talk about the concept of time.

Time is continuous, one-dimensional, all moments are the same, only moving forward. It smoothly passes only from the past to the future. It cannot be reversed. To understand the one-dimensionality of time, it can be explained in a simple way through proverbs, which are an excellent example of folklore. for example

- Time is the supreme judge
- Time is flowing water
- Your time is gone - your money is gone
- Time cannot be turned back

Based on the concepts of mechanics and time, we will now talk about the nature of time and what parameters time is explained in different theories.

In classical mechanics, time is seen as a simple parameter. According to Isaac Newton, the great representative of the world of physics, time is absolute and unchanging. It lasts the same for each event and all events occur at this common time. Absolute, real, mathematical time, in its own way and in its essence, does not depend on anything. This view of Newton

allows us to imagine time as a single "stage" in which all actions and events are manifested.

Albert Einstein's theory of relativity changed the concept of time dramatically. In Einstein's special theory of relativity, time depends on the state of motion: as an object's speed increases, time slows down—a phenomenon called "time dilation." For example, an astronaut traveling at high speed passes time slowly compared to a person on the ground. This theory became the basis for gaining an understanding of the relativity of time, that is, that time depends on each observer.

And Einstein's theory of general relativity links time to gravity. According to this theory, gravity slows down time. For example, in a strong gravitational field (for example, near a black hole), time passes slowly. This phenomenon is important for astronauts to understand how time passes in other places.

Within quantum mechanics, the nature of time becomes more complicated. In this theory, time is evaluated more statistically. Transitions between quantum states occur over time, but time itself is not precisely defined by quantum mechanics. This raises new questions for science: how to measure time in quantum states? The connection between time and quantum mechanics has not yet been fully explored.

The nature of time and its perception in physical theories is a very complex and diverse topic. From classical mechanics to relativity and quantum theory, time has its own aspects in each theory. These changes are one of the main factors in the development of science, and the concept of time deepens humanity's understanding of the universe. Questions about the nature of time and how it works continue to stimulate new research and discussion in the worlds of science and philosophy.

The nature of time is important not only from a scientific point of view, but also for human experience. Humans have a sensitive sense of time, and these perceptions shape their actions, decisions, and lives in general. How we understand and perceive time affects our mental state and social relationships. For example, whether we perceive time as passing quickly or slowly depends on our mood.

The concept of time is another important term related to time. Time is related to the occurrence of every event and historical changes. Changes in time are often accompanied by changes in time. The connection between these concepts further complicates the communication between time and time. Current events and historical context affect how time is perceived.

Today, in the world of science, new theories and researches are being conducted about the nature of time. Physicists are trying to understand time and its quantum properties. New directions such as the "quantum theory of time" aim to further explore the relationship between time and space. Such studies allow us to visualize time in terms of quantum mechanics.

In addition, new physical theories for understanding time, such as "string theory" and "loop quantum gravity", extend the concept of time even further. These theories relate time to changes in space and allow us to see the physical properties of time in a new direction.

Time and its nature are one of the main topics of physical research today. The perception of time in classical, relativistic and quantum theories allows us to deepen our knowledge of the universe. How we perceive time and how we understand it affects not

only scientific research, but also the cultural, social and philosophical development of mankind.

In the future, the study of time will continue with the help of new theories and experiments. It plays an important role in scientific research, in our understanding of the true nature of time and the uniqueness of the universe. Questions about time continue the dialogue between science, philosophy and art, and this process can open new horizons for humanity.

Studying the physics and philosophy of time also influences the development of modern technology. For example, the GPS (Global Positioning System) system is a practical application of the theory of relativity. This system is based on collected time data and takes into account the way satellites in their orbits perceive time due to the theory of relativity. If time dilation and dilation are not taken into account, the accuracy of the GPS system will decrease significantly.

The effect of time on human psychology is also being studied. Psychologists have done a lot of research on how the perception and perception of time affects a person's mood, stress levels, and overall mental health. For example, the feeling that time is passing quickly is often observed in stressful situations or during fun activities. This, in turn, affects people's decision-making processes.

Questions about how the universe develops and how time changes are of interest to many scientists and researchers. Our current knowledge of the expansion of the universe also includes changes in time. Theories about the beginning and end of the universe, the infinity of time, and existence are important in understanding the evolution of the universe. Time itself, together with the existence of the universe, determines its structure and dynamics.

When talking about the nature of time, its perception in physical theories and its place in human experience, this topic is important not only from scientific, but also from social, cultural and philosophical aspects. Time is an important parameter for understanding the universe around us, life and human history. Our research and understanding of time will continue into the future, leading to new discoveries, theories, and further expanding humanity's view of time.

The study of time in the future, by combining modern technology, scientific research and philosophical thought, will help to deepen the understanding of

mankind about time. In this way, time, not only as a physical concept, but as a part of life, creates new interactions and discoveries in many areas of humanity.

REFERENCES

1. V.A. Chuyanov. Young physicist. Encyclopedic dictionary. T. 1989.
2. P.Q. Habibullayev and others. Physics. Textbook for 7th grade. T. 2009.
3. A.G. Ganiyev and others. Physics Part I. Textbook. Tashkent. 2009.



OSCAR
PUBLISHING SERVICES