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THE HISTORY OF THE DEVELOPMENT OF PHYSICAL SCIENCE

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Abstract

Physics means "nature" in Greek. Physics is a science of natural existence, which studies the most common laws of nature, matter and its structure, movement and change rules. To put it simply, physics is the science that studies everything around us, from what it is. Physics is a natural science, but its laws and calculations are based on precision. It consists of the following main parts:

1. Classical mechanics;
2. Electrodynamics and classical field theory;
3. Quantum mechanics;
4. Statistical physics and thermodynamics;
5. Optics and Spectroscopy;
6. Molecular physics;
7. Atomic physics;
8. Quantum field theory;
9. Gravitation and Cosmology;
10. Calibrated fields and Super symmetry.

Physics is divided into experimental and theoretical physics. Experimental physics is a category of sciences and sub-disciplines related to the observation of physical phenomena and experiments in the field of physics. Methods vary from science to discipline, from simple experiments and observations such as Galileo's experiments to more complex ones such as the Large Hadron Collider.

Theoretical physics is a branch of physics used to create mathematical models of physical phenomena and compare them to practice as the main method of learning about nature. In this case, theoretical physics is an independent method of studying nature. However, this method does not use experiments to solve the basic laws of physics, but is a modeled method of studying nature. The basic objective laws and phenomena in nature are formed and accepted on the basis of observations and experimentally proven results.

Historical development of physics. The history of physics can be divided into 3 periods:

1) Height the period from modern times to the 17th century;
2) The period from the 17th century to the end of the 19th century. The physics of this period is usually called classical physics;
3) The period from the end of the 19th century to the present. Modern physics (or modern physics) belongs to this period.

The ancient philosopher and scientist Aristotle (384-322) greatly influenced the development of physics. It is based only on scientific theories and not on experiments in explaining natural phenomena.

If we look at the history of the development of physics, the services of the great thinking Uzbek scientists Abu Ali Ibn Sina, Abu Raikhan Beruni, Mirza Ulugbek, Al Farghani are worthy of praise. Ibn Sina's "Encyclopaedia" written in 1035 is devoted to logic, metaphysics and physics in three parts.

In his correspondence with Abu Rayhan Beruni, Ibn Sina explained his views on the causes of expansion due to heat and contraction due to cold, and also sufficiently dealt with issues of geometrical optics, acoustics, electricity, and magnetism in general. Abu Rayhan Beruni's scientific researches in the field of matter, measurement units, linear and angular velocity, atmospheric pressure, gravitational force between liquid particles, inertia, and free fall of objects made a great contribution to the development of physics. The creation of Newton's corpuscular theory about the nature of light was caused by Abu Rayhan Beruni's description of light as a bundle of material particles.

Theoretical physics originated about 2300 years ago as a philosophical discipline, continued by Plato and Aristotle. On the basis of intellectual sciences recognized in the Middle Ages: grammar, logic, rhetoric, arithmetic, geometry, music and astronomy. During the Middle Ages and the Renaissance, the concept of experimental science as opposed to theory began with scholars such as Ibn al-Haytham and Francis Bacon. As the scientific revolution progressed rapidly, the concepts of matter, energy, space, and time gradually took on the form we know them, and other disciplines diverged from the foundations of natural philosophy. Thus, the modern era of theoretical physics began with the Copernican paradigm shift in astronomy. In a short time, Kepler's statements about the orbits of the planets and Tycho Brahe's generalization of astronomical observations led to a scientific revolution.

Abu Rayhan Muhammad ibn Ahmad Al-Beruni (September 4, 973, Kat (present-day Beruni district of Karakalpakstan), Khorezm, December 13, 1048 Ghazna) is one of the leading encyclopedic scholars of Khorezm of the Islamic Golden Age. Al-Biruni's name is derived from the Persian word "birun" (meaning "foreign"), and he was born in a remote district of Qat, the capital of the African Khorezmshahs. Al-Biruni spent the first 25 years of his life in Khorezm, where he studied Islam, jurisprudence, theology, grammar, mathematics, astronomy, medicine and philosophy, physics and other sciences. In addition to his mother tongue, Khorezm, Beruni knew Persian, Arabic, Greek, Hebrew, and Syriac, and learned Sanskrit at the age of 50. The last representative of the Iraqis was Abu Nasr Mansour ibn Iraq Beruni's teacher. Al-Biruni was well versed in astronomy, mathematics, geodesy, geography and mineralogy and natural sciences. He also distinguished himself as a historian, chronologist and linguist. He is known as an encyclopedic scholar due to his thorough knowledge of almost all the sciences of his time, and was richly rewarded for his tireless research in many fields of science. The royal family and other powerful elements in society funded Al-Beruni's research. Al-Biruni himself, who had a unique influence, while studying philosophy, also received inspiration from scientists of other nations, especially Greek scientists.

Beruni carried out great innovations in the field of physics and made a significant contribution to the development of physics.

Many Eastern thinkers are considered to have made a significant contribution to the development of physical science, and this indicator maintains its ranking even today.

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