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## RESEARCH IN THE FIELD OF PHYSICS IN UZBEKISTAN

**Annotation .** Physics, as a science, opens up new horizons of knowledge and technology for us and plays a key role in the development of modern society. In Uzbekistan, physics becomes an integral part of the strategy of intellectual, technological and economic development. The article describes how the importance of physics is manifested in the society of Uzbekistan and how this science is developing in the country.

**Key words.** Uzbekistan, Physics, Institute, Institute of Nuclear Physics, Academy of Sciences

**Introduction.** Physics occupies an important place in education and scientific research in Uzbekistan. The development of education in the field of physics helps to form highly qualified specialists capable of solving complex problems in the fields of science and engineering. Higher educational institutions and research institutes of Uzbekistan are actively involved in scientific research aimed at expanding scientific knowledge and solving practical problems.

**Methodology.** Uzbekistan is one of the countries where science and culture have developed since ancient times. The works and discoveries of great thinkers such as Farobi, Beruni, Ibn Sina, Ulugbek, who are the great representatives of Eastern scholars, in the fields of natural sciences, mathematics, medicine, philosophy, and linguistics contributed greatly to the development of the world's science and science. led to the rise to a higher level and the emergence of new directions. The next generations, who have high respect and reverence for the spirit of the great grandfathers, remain worthy successors of their works. A clear

example of this is the work carried out in the field of physics development in Uzbekistan.

In universities and institutes of our country, as well as scientific institutions of the Academy of Sciences, research works are carried out on a large scale in almost all directions of physical science.

**Results and discussions.** In Uzbekistan in the 1920s and 1930s, scientific research in the field of physics was carried out in the laboratories of higher educational institutions.

In 1932, the Science Committee of Uzbekistan was formed.

In 1943, the Academy of Sciences of Uzbekistan was established. In the same year, the Institute of Physics and Technology of the Academy of Sciences

Institute of Nuclear Physics in 1956

Below we will discuss in detail about the Institute of Nuclear Physics.

The first researches in the field of nuclear physics in Uzbekistan began in the 20s of our century. But since the end of the 40s, under the leadership of academician S.A. Azimov, nuclear physics was established at the Institute of Physics and Technology of the Academy of Sciences of Uzbekistan, the Cosmic Ray Laboratory and the Central Asian State University (now the National University of Uzbekistan named after Mirzo Ulugbek). works in the field of nuclear physics have been regularly held at the department.

In 1955, extensive work on applied nuclear physics was started. In this case, U.O. Orifov took the initiative: in the Institute of Physics and Technology of the Academy of Sciences of Uzbekistan, the possibility of using gamma rays in the processing of silkworm cocoons in a device with a source of cobalt-60, gamma radiation, began to be researched.

In September 1959, the VVR-S nuclear reactor was put into operation. Its capacity was 2 megawatts. Research works on nuclear spectroscopy, radiation physics and radiation materials science, activation analysis were started there.

Later, work began on studying the structure of crystals based on neutron graphic analysis and nuclear fission fragments using the mass spectrometric method.

A new period of development of the Institute of Nuclear Physics began in 1978. From that time to 1988, the work at the institute was continued under the leadership of Academician Khabibullaev. By that time, under the supervision of the institute, an experimental-production enterprise for the preparation of radioactive isotopes and their compounds - " Radiopreparation " - was established, and materials were prepared for the establishment of a special design bureau of radioactivity equipment with an experimental plant as part of the institute. As a result of accelerating the works of the institute and directing them to solve the problems related to the development of the mining, metallurgy, electronic and chemical industry of our republic, until 1980, the improvement of nuclear-physics devices, the development of economic departments, the new relations with industrial enterprises forms, a set of works on the organization of laboratories under them was completed.

In the next 10 years, recognition of the institute at the level of international scientific cooperation and wider application of research results in the national economy of our republic began[1]

In 1966, Institute of Astronomy, in 1967 Institute of Electronics, in 1976, the "Physics-Sun " scientific production association was established.

In 1977, the Department of Thermal Physics of Academy of Sciences joined the ranks of scientific research institutions in physics.

In 1992, " Universe " scientific production association, in 1993, the Institute of Materials Science was added. In these scientific research institutions, as well as in Tashkent State University (now the National University of Uzbekistan), Samarkand State University, Nukus State University, Tashkent State Technical University and other higher educational institutions, research works on various problems of physics are carried out on a world scale. appropriate contribution to the development of physics [2].

The successes achieved by the scientists of our country in other areas of physics are incomparable. In particular, electron-nuclear beams in the atmosphere were discovered. The phenomenon of coherent diffraction dissociation of protons in the nucleus was discovered for the first time in the world.

Several types of semiconductor solid solutions were created and their physical properties were studied. Based on the results of the research, ultra-high frequency diodes, devices designed for the study of fast electronic processes in semiconductors, photodiode matrices for image transmission, a silicon-lithium detector and other devices were created. Various materials necessary for space research were created in cooperation with Russia.

In the scientific research institutions and laboratories of higher educational institutions of our country, scientific researches of practical importance are being carried out in the modern fundamental directions of solid state physics, thermal and molecular physics, optics and acoustics.

In the field of optics of condensed media, optical phenomena associated with the propagation of laser light in ultra-pure transparent media were studied, and a new phenomenon - fast broadband luminescence - was discovered.

In the field of laser spectroscopy, the phenomena of anomalous deviation of laser light and self-focusing in nonlinear media were discovered. A nonlinear modulating beam fiber optic was created.

Also, high-efficiency light-emitting diodes (academic M.S. Saidov), a number of materials necessary for space research were created in cooperation with Russia.

Currently, in the field of physics, the Scientific Research Institute of Applied Physics of the Mirzo Ulugbek National University of Uzbekistan, physics departments of most higher education institutions, and the following 6 scientific research institutes of the Academy of Sciences of Uzbekistan:

Institute of Physics and Technology. "The Sun" - scientific production association; Department of thermal physics; Institute of Nuclear Physics ; Institute of Electronics; Institute of Polymer Physics; Institute of Astronomy is operating.

Physics occupies an important place in education and scientific research in Uzbekistan. The development of education in the field of physics helps to form highly qualified specialists capable of solving complex problems in the fields of science and engineering. Higher educational institutions and research institutes of Uzbekistan are actively involved in scientific research aimed at expanding scientific knowledge and solving practical problems.

**Conclusion.** The importance of physics in the development of Uzbek society cannot be overestimated. It serves as a basis for scientific research, technological development and innovation. In Uzbekistan, physics is becoming a powerful tool that serves the sustainable development of our country and increases its competitiveness at the world level. The development of physical science in Uzbekistan continues to open new prospects for the country in the fields of education, science and technology.

The research conducted in the field of physics in our country contributes to the development of modern physics on a global scale, and to the well-being of the people's lifestyle.

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