



THE CONTRIBUTION OF SCIENTISTS TO THE DEVELOPMENT OF EXACT SCIENCES IN THE DEVELOPMENT OF UZBEKISTAN. (IN THE EXAMPLE OF KARSHI STATE UNIVERSITY)

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Received: 8 th March 2026 Accepted: 7 th April, 2026	This article provides information about the contributions of scientists working at Karshi State University during the years of independence to the development of the field of exact sciences.
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Today, changes in attitudes towards women and the issue of ensuring gender equality are recognized as a factor of sustainable development, creating broad opportunities for their work in all areas. Therefore, increasing the social activity of women, guaranteeing their rights and freedoms, raising a healthy generation, and encouraging women's work have become the demands of the time. It is also known from our past history that for thousands of years the cultural level of each society has been determined by its attitude towards women. Respect for women and showing respect for them is one of the greatest values inherent in the Uzbek people.

At the beginning of the 20th century, issues such as the development of women as educated, knowledgeable, cultured, and useful people for their society were also reflected in the views of the Jadid enlighteners. The Jadids tried to explain the special place and status of an educated woman in the family and society. The following can be learned from the sources: "... education is certainly necessary to educate women and polish their minds and to make good relations with their husbands and to raise their children and to know how to be good at marriage" [1:250].

From the first days of the independence of the Republic of Uzbekistan, special attention has been paid to the issue of supporting women in our country. A number of laws and resolutions have been adopted in this regard. As President Shavkat Mirziyoyev noted: "... the main goal of the state policy being pursued in Uzbekistan today is to bring attention and practical care to our women to a new, higher level, strengthen the role and status of women in society, and ensure their rights and interests"[2:59]. The fact that 22 laws and more than 30 regulatory documents have been promulgated in our country, ensuring the rights and freedoms of more than 17 million women, indicates that this area is one of the state's priority tasks[3:32]. Also, the activities of public associations established in the republic - "Science and Women", "Creative Women", "Inventive Women", "Scientist" (founded on January 9, 1992) - are of particular importance in improving the intellectual potential, consciousness and thinking of female students, researchers and independent researchers, doctoral candidates. The expansion of the ranks of female scientists has contributed to the increasing prestige of women in society.

On October 22, 2012, the "Olima" women's association began operating in the Kashkadarya region[4:7]. The association included women with academic degrees and scientific researchers working at the Karshi Institute of Engineering and Economics, Karshi State University, the Karshi branch of the Tashkent Institute of Information Technologies, academic lyceums and vocational colleges. Before independence, there were a total of 19 women with academic degrees in the Kashkadarya region. In 2012, the number of regional scientists was 70, but by 2021 their number had reached 148.

Issues such as the conditions created for the development of science in Uzbekistan, government support for scientific and innovative activities, providing all fields, including exact and technical fields, with material and technical resources that meet modern requirements, and training specialist personnel have been raised to the level of state policy. Women working in the exact sciences are also actively participating in this process and making their worthy contribution to the development of science. Among such scientists, women who are conducting scientific research in the exact sciences also make up the majority. In particular, Doctor of Pedagogical Sciences, Professor Nasiba Kayumova is one of the scientists who has contributed to the development of the exact sciences[5:23]. In 2008, she defended her candidate thesis in the specialty 13.00.02 - Theory and Methodology of Education and Training (Informatics) at the Nizami Tashkent State Pedagogical University and received the honorary title of scientist. By 2022, she will defend her scientific thesis in the specialty 13.00.06 - Theory and Methodology of Electronic Education on the topic "Improving the Methodology of Training Future Informatics Teachers in an Electronic Education Environment Based on an Integrative Approach." N. Kayumova is the first doctor of science in the republic in this specialty. The scientist is the author of more than 200 scientific and methodological works. These include 2 textbooks, 3 study guides, 2 monographs, 8

methodological guides, 10 certificates of ownership of electronic educational resources, more than 15 international, more than 30 articles in the possession of the National Academy of Sciences. The scientist is also a member of the seminar of the specialized council awarding Doctor of Science (DSc), Doctor of Philosophy (PhD) degrees at the Nizami State Technical University, KarSU.

Another female scientist from Kashkadarya is Doctor of Philosophy in Physics and Mathematics, Associate Professor Mastura Rustamova. In 2018, the scientist successfully defended her dissertation on the topic "Martinelli-Boxner integral formula in the upper half-space" and received the degree of Doctor of Philosophy (PhD) in Physics and Mathematics. In 2020, she received the degree of Associate Professor. Mastura Rustamova is one of the first scientists in the Kashkadarya region to conduct research in mathematics, write and successfully defend a dissertation, receive the degree of Doctor of Philosophy and the title of Associate Professor, and is a member of the "Uzbek Society of Mathematicians". Mastura Rustamova's research work is devoted to the current issues of complex analysis, which is widely used in mathematics today. The research results obtained by the scientist are included in the monographs of leading scientists of the Russian Academy of Sciences, and are included in the world's most global scientific electronic libraries "elibrary.ru", "Math-Net.Ru". The scientist has published more than 50 scientific works in the field of mathematics, including 1 monograph, 2 pamphlets, 1 electronic textbook, 2 teaching and methodological manuals, reports at about 15 international scientific conferences, and more than 20 reports at republican scientific and practical conferences. His scientific articles have been published in scientific journals of Germany, Russia, America, the Czech Republic, Austria and many other foreign countries. The scientist is a member of the Specialized Scientific Council for the award of the degree of Doctor of Philosophy in Physics and Mathematics at KarSU.

Another female scientist conducting scientific research in the field of exact sciences is Rakhima Nurmamatova. The scientist received her professional education in the specialty: water, heat, gas supply, sewage and ventilation, and continued her scientific work in this area. In 2021, she successfully defended her dissertation on the topic "Reducing the risk factors of production at industrial enterprises" at the Scientific Council under the Academy of the Ministry of Emergency Situations of the Republic of Uzbekistan, and received the degree of Doctor of Philosophy (PhD) in technical sciences. In 2022, at the one-time Scientific Council under the Academy of Emergency Situations of the Republic of Uzbekistan, he successfully defended his doctoral dissertation on the topic "Improving the theoretical and experimental foundations of reducing the explosion risk of production processes at enterprises of economic sectors" in the specialties "05.10.02 - Safety in emergency situations. Fire, industrial, nuclear and radiation safety" and "05.10.01 - Labor protection and human activity safety". He received the degree of Doctor of Technical Sciences. More than 100 scientific works of the scientist have been published. "Labor protection and human activity safety" and "Safety in emergency situations. He is the author of 2 textbooks, 3 textbooks, 3 monographs, 3 pamphlets, 7 lecture notes, 11 educational, teaching and methodological manuals, instructions, about 20 international conference reports, about 60 literary, journalistic and analytical articles on the topics "Fire, industrial, nuclear and radiation safety". His scientific articles have been published in scientific journals in the USA, Germany, Russia, the Czech Republic, Poland, India and many other foreign countries.

Another scientist working in the field of exact sciences is Gulbakhor Ishmurodova. The scientist graduated with honors in physics and studied at the postgraduate course "Theory and Methods of Teaching Physics". In 2005, she successfully defended her dissertation on the topic "The Content of Mechanics Education at School and Methods of Teaching It" at the Specialized Council of the Nizami Tashkent State Pedagogical University, under the guidance of Doctor of Pedagogical Sciences, Professor D.Sh. Shodiev, and received the degree of Candidate of Pedagogical Sciences. In the 1999-2009 academic years, she worked as a teacher, senior teacher at the Department of General Technical Sciences of Karshi State University, and in the 2009-2014 academic years, she worked as a head of the department at the Department of General Technical Sciences and Labor. In the 2017-2019 academic years, she worked as the head of the department at the Physics Department of the Karshi Institute of Engineering and Economics. As a result of her research, Gulbahor Ishmurodova published 3 monographs, 1 textbook entitled "Folk Crafts and Artistic Design" for students of the bachelor's degree in technological education of higher educational institutions, 1-2-part textbook entitled "Folk Crafts and Artistic Design", 3 teaching and methodological guides, more than 20 scientific and methodological articles in international scientific and authoritative journals of the republic registered with the National Academy of Sciences, and more than 60 theses in collections of scientific and practical conferences held at the international, republican, regional and higher educational institutions levels.

Thus, during the years of independence, the activities of women in educational reforms expanded. The activities of the women's associations "Science, Science and Women", "Creative Women", "Inventive Women", "Scientist" became important. During the years of independence, the number of scientists conducting scientific research in the field of exact sciences expanded. Many textbooks, study guides, PhD and DSc dissertation defenses were carried out by women scientists.

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