Report on the work of the dissertation council

Dissertation council at NAO "Aktobe Regional University named after K. Zhubanov" in charge of training personnel for the Doctor of Philosophy (PhD) degree in the profile 6D060100 - Mathematics.

By the decision of the Academic Council of NAO "Aktobe Regional University named after K. Zhubanov" dated May 20, 2022, Protocol No. 12, the permanent composition of the dissertation council for the specialty 6D060100-8D05401 - Mathematics was approved (Order No. 369-N dated 24.05.22):

Sartabanov Zhaishylyk Almaganbetovich – Doctor of Physical and Mathematical Sciences, Professor, Chairman of the dissertation council, Hirsch index - 5;

Tleubergenova Madina Almukhanovna – Candidate of Physical and Mathematical Sciences, Associate Professor, Deputy Chairman of the dissertation council, Hirsch index - 9;

Abdikalikova Galiya Amirgaliyevna – Candidate of Physical and Mathematical Sciences, Associate Professor, member of the dissertation council, Hirsch index - 2;;

Tleubergenov Marat Idrisovich – Doctor of Physical and Mathematical Sciences, Professor, member of the dissertation council, Chief Researcher of the Institute of Mathematics and Mathematical Modeling of the Ministry of Education and Science of the Republic of Kazakhstan, Hirsch index - 8;

Seilova Roza Dzhambulovna – Candidate of Physical and Mathematical Sciences, Academic Secretary of the dissertation council, Hirsch index - 2.

The dissertation council is authorized to accept dissertations for defense in the specialty 6D060100-8D05401 - Mathematics.

The report contains the following information:

1. Data on the number of meetings held.

In 2024, the Dissertation Council for Mathematics held 6 (six) meetings.

2. The last names, first names, and patronymics (if any) of the members of the dissertation council who attended less than half of the meetings.

None.

3. A list of doctoral students indicating their training organizations.

№	Full name	Organization of training	Specialty code	Date of protection	Committee's decision, order number, date
1	Ubaeva Zhanar Kartbaevna (the defense will take place on January 22, 2024)	Aktobe Regional University named after K. Zhubanov	6D060100 – Математика	January 22, 2024	№369, 20.03.2024
2	Isenova Akkenzhe Altmyshevna (the defense will take place on January 22, 2024)	Aktobe Regional University named after K. Zhubanov	6D060100 – Математика	January 22, 2024	№369, 20.03.2024
3	Tutkusheva Zhailan Salavatovna (the defense will take place on June 26, 2024)	Aktobe Regional University named after K. Zhubanov	6D060100 – Математика	January 22, 2024	№00015481424 №629 22.07.2024

4	Mukash Meirambek Amirhzanuly	Aktobe Regional University named after K. Zhubanov	8D05401 – Mathematics	August 23, 2024	№885 04.10.2024

4. A brief analysis of the dissertations reviewed by the council during the reporting year, highlighting the following sections:

4.1.1 Analysis of the topic of the doctoral work of Ubaeva Zh.K.:

The dissertation of Ubaeva Zh.K., a doctoral student at ARU named after K. Zhubanov, is written on the topic "Clausen textbooks of the Russian Academy of Sciences".

Joint research was conducted with a foreign scientific consultant, Doctor of Physical and Mathematical Sciences, Professor of the Tajik National University Radjabov Nusrat Radjabovich (Dushanbe, Tajikistan)

The purpose of the work is to study the existence of a solution to a Clausen-type system, search for effective methods for constructing inhomogeneous equations and solutions to a Clausen-type system and extending these methods to systems of equations whose solutions are generalized hypergeometric functions with several variables. Develop a theory for constructing normal, normally regular solutions near singular curves using effective methods.

The theoretical evaluation of the results obtained in the dissertation work is distinguished by the development of the analytical theory of a system of third-order partial differential equations and by finding solutions to the considered problems in the form of generalized hypergeometric functions. Therefore, the practical significance of the dissertation work lies in the fact that it occupies an important place in the theory of multidimensional special functions and is used in studies of various problems in mathematical physics, electrodynamics, the theory of multidimensional equations, radio electronics, and antenna theory.

4.2.1 The relevance of the dissertation topics with the directions of scientific development formed by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan in accordance with paragraph 3 of Article 18 of the Law "On Science" and/or state programs.

The dissertation work corresponds to the priority area of scientific development "10. Scientific research in the field of natural sciences, 10.1 Fundamental and applied research in the field of mathematics and mechanics."

4.3.1 Analysis of the level of implementation of the dissertation results in practical activities.

The main provisions of the dissertation were discussed at meetings and scientific seminars of the Department of Mathematics of Zhubanov ARU, at online (Zoom) scientific seminars jointly with the Institute of Mathematics and Mathematical Modeling of the Republic of Kazakhstan (Almaty), as well as at international conferences.

Based on the results of the doctoral dissertation, 23 printed works were published, including 3 articles in scientific journals recommended by the Committee for Quality Assurance in Education and Science of the Ministry of Higher Education of the Republic of Kazakhstan, 2 articles in publications from the Scopus database: in the journal Mathematical Modelling of Engineering Problems (percentile = 64, 2023) and Lobachevskii Journal of Mathematics (percentile = 56, 2023), 1 article in an RSCI journal, 1 article in the scientific journal Bulletin of the Aktobe Regional University named after K. Zhubanov, and 16 publications in the materials of international conferences, including 1 publication in the proceedings of foreign conferences.

4.1.2 Analysis of the topic of the doctoral work of Isenova A. A.:

The dissertation of Isenova A.A., a doctoral student at Zhubanov ARU, is written on the topic "Construction of solutions of Whittaker-type systems near singular curves."

Joint research was conducted with a foreign scientific consultant, Doctor of Physical and Mathematical Sciences, Academician of the Tajik National University Radjabov Nusrat (Dushanbe, Tajikistan).

The purpose of the dissertation is an in-depth study of degenerate hypergeometric systems of second-order partial differential equations, the establishment of a number of new

systems of the Bessel, Laguerre, and Whittaker type, and those related to Horn systems, as well as the development of effective algorithms for constructing their solutions near regular and irregular singular curves. The study also explores the possibility of the existence of normally regular solutions of degenerate hypergeometric systems obtained from Lauricella systems using limit transitions. The practical significance lies in the theory of generalized degenerate hypergeometric functions of many variables, which is widely used in problems of mathematical physics, the theory of multidimensional degenerate equations, antenna theory, and other related fields.

4.2.2 The relationship of the dissertation topics with the areas of scientific development established by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan in accordance with paragraph 3 of Article 18 of the Law "On Science" and/or state programs.

The dissertation work corresponds to the priority area of scientific development "10. Scientific research in the field of natural sciences, 10.1 Fundamental and applied research in the field of mathematics and mechanics."

4.3.2 Analysis of the level of implementation of the dissertation results in practical activities.

The main provisions of the dissertation were discussed at meetings and scientific seminars of the Department of Mathematics at Zhubanov ARU, at online (Zoom) scientific seminars jointly with the Institute of Mathematics and Mathematical Modeling of the Republic of Kazakhstan (Almaty), as well as at international conferences.

Based on the results of the doctoral dissertation, 16 printed works were published, including 3 articles in scientific journals recommended by the Committee for Quality Assurance in Science and Higher Education of the Ministry of Higher Education of the Republic of Kazakhstan, and 2 articles in publications from the Scopus database: in the European Journal of Pure and Applied Mathematics (percentile = 38, 2021) and Lobachevskii Journal of Mathematics (percentile = 56, 2022), as well as 11 publications in the materials of international conferences.

4.1.3 Analysis of the topic of the work of the doctoral student Tutkusheva Zh.S.:

The dissertation of the doctoral student of the Zhubanov ARU Tutkusheva Zh.S. is written on the topic "The problem of high-precision determination of global minima of smooth functions of several variables".

Joint research was conducted with a foreign scientific consultant, Doctor of Physical and Mathematical Sciences, Professor of the Institute of Mathematics with the Computing Center of the Ufa Scientific Center of the Russian Academy of Sciences (Ufa, Russia).

The dissertation is devoted to an urgent problem that constantly arises in practice. It proposes a method for finding the global extremum of a continuous function of many variables, based on a new special auxiliary function of a special type.

The dissertation defines and proves the main properties of the auxiliary function: non-negativity, uniform continuity, strict convexity, differentiability and monotonicity.

The necessary and sufficient conditions for the optimality of the global minimum of the multidimensional objective function are obtained and proved. They led to the transition from finding the global minimum of the objective function to the problem of finding the "largest zero" of the auxiliary function.

The method for finding the global minimum developed in the work was tested on various test functions with several variables.

4.2.3 Connection of the dissertation topics with the directions of scientific development, which are formed by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan in accordance with paragraph 3 of Article 18 of the Law "On Science" and (or) state programs.

The dissertation work corresponds to the priority direction of scientific development "10. Scientific research in the field of natural sciences 10.1 Fundamental and applied research in the field of mathematics and mechanics."

4.3.3 Analysis of the level of implementation of dissertation results in practical activities.

The main provisions of the dissertation were discussed at meetings and scientific seminars of the Department of Mathematics of the Zhubanov ARU, at online (Zoom) scientific seminars jointly with the Institute of Mathematics and Mathematical Modeling of the Republic of Kazakhstan (Almaty), as well as at international conferences.

Based on the results of the doctoral dissertation, 10 printed works were published, including 2 articles in scientific journals included in the list recommended by the Committee for Quality Assurance in Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan, 4 articles in a publication from the Scopus database in the journal Mathematical Modelling of Engineering Problems (percentile = 64, 2023), 3 publications in the materials of international conferences, including 1 publication in the materials of foreign conferences.

4.1.4 Analysis of the topic of the doctoral work of Mukash M.A.:

The dissertation titled "Analysis and Qualitative Properties of Solutions to Boundary Value Problems for Impulsive Differential Equations" was carried out in collaboration with Dr. Alexander Nikolaevich Stanzhitsky, Professor at Taras Shevchenko National University of Kyiv, Ukraine.

The aim of the dissertation is to apply averaging and parameterization methods for solving boundary value problems for impulsive differential equations and to develop effective solution techniques.

Applications include automatic control systems, computational systems, and other engineering, technical, economic, and biomedical fields.

4.2.4 The relevance of the dissertation topics with the directions of scientific development formed by the Higher Scientific and Technical Commission under the Government of the Republic of Kazakhstan in accordance with paragraph 3 of Article 18 of the Law "On Science" and/or state programs.

The dissertation work corresponds to the priority area of scientific development "10. Scientific research in the field of natural sciences, 10.1 Fundamental and applied research in the field of mathematics and mechanics."

4.3.4 Analysis of the level of implementation of the dissertation results in practical activities.

The main provisions of the dissertation were discussed at meetings and scientific seminars of the Department of Mathematics of Zhubanov ARU, at online (Zoom) scientific seminars jointly with the Institute of Mathematics and Mathematical Modeling of the Republic of Kazakhstan (Almaty), as well as at international conferences.

8 publications resulted from this dissertation, including 3 articles in journals recommended by the Committee for Quality Assurance in Education and Science and one article in a Scopus-indexed journal (Carpathian Mathematical Publications, percentile=69, 2022).

5. Analysis of the work of official reviewers (with examples of the lowest quality reviews).

The reviewers of doctoral dissertations for the degree of Doctor of Philosophy (PhD) were appointed in accordance with the requirements of the Model Regulations on the Dissertation Council. Information about the appointed reviewers is provided below:

№	Doctoral student	Reviewers	
1	Ubaeva Zhanar Kartbaevna	Oinarov Ryskul Oynarovich – Academician of the National Academy of Sciences of the Republic of Kazakhstan, Doctor of Physical and Mathematical Sciences (01.01.02 – Differential	Ryskan Ainur Ryskankyzy – Doctor of Philosophy (PhD) (6D060100 Mathematics), Senior Lecturer, Department of Mathematics and Mathematical Modeling,

		Equations and Mathematical Physics), Professor of the Department of Fundamental Mathematics of the L.N. Gumilyov Eurasian National University, Astana, Kazakhstan.	Abai Kazakh National University, Almaty, Kazakhstan.
2	Isenova Akkenzhe Altmyshevna	Yuldashev Tursun Kamaldinovich – Doctor of Physical and Mathematical Sciences (01.01.02 – Differential Equations and Mathematical Physics), Professor, National University of Uzbekistan named after Mirzo Ulugbek, Tashkent, Uzbekistan.	Ibraeva Gulmira Temirgalievna – Candidate of Physical and Mathematical Sciences (01.01.02 – Differential Equations and Mathematical Physics), Associate Professor of the Department of Natural Sciences, Military Institute of the Air Defense Forces named after twice Hero of the Soviet Union T.Ya. Begeldinov, Aktobe, Kazakhstan.
3	Tutkusheva Zhailan Salavatovna	Kanguzhin Baltabek Esmatovich – Doctor of Physical and Mathematics (01.01.02 – Differential Equations and Mathematical Physics), Professor, Al-Farabi Kazakh National University, Almaty, Kazakhstan.	Iskakov Kazizat Takuadinovich – Doctor of Physical and Mathematics (01.01.07 – Computational Mathematics), Professor, L.N. Gumilyov Eurasian National University, Astana, Kazakhstan.
4	Mukash Meirambek Amirhzanuly	Dauylbayev Muratkhan Kudaibergenovich is a Doctor of Physical and Mathematical Sciences (specialization: 01.01.02 – Differential Equations and Mathematical Physics), Professor of the Department of Mathematics at Al-Farabi Kazakh National University, Almaty, Kazakhstan.	Kashkynbayev Ardak Turysbekuly is a Doctor of Philosophy (PhD) (specialization: 6D060100 – Mathematics), Associate Professor of the Department of Mathematics at Nazarbayev University, Astana, Kazakhstan.

The reviewers, Academician of the National Academy of Sciences of the Republic of Kazakhstan Oinarov Ryskul, Doctor of Physical and Mathematical Sciences, Professor Yuldashev T. K., Ph.D. Ryskan Ainur, Candidate of Physical and Mathematical Sciences, Associate Professor Ibraeva Gulmira, Doctor of Physical and Mathematics, Professor Kanguzhin B.E., Doctor of Physical and Mathematics, Professor Iskakov K.T., Doctor of Physical and Mathematics, Professor Dauylbayev Muratkhan, Doctor of Philosophy (PhD) Kashkynbayev Ardak showed their high professionalism.

There are no comments on the reviewers' work.

6. Suggestions for further improvement of the system for training scientific personnel. -

7. The number of dissertations for the degrees of Doctor of Philosophy (PhD) and Doctor of Science in the profile, in the context of areas of personnel training:

	Specialty 6D060100 – Mathematics (8D05401 – Mathematics)
1) dissertations accepted for defense	4 (four)

(including doctoral students from other universities)	
2) dissertations withdrawn from consideration (including those of doctoral students from other universities):	-
3) dissertations that received negative reviews from reviewers (including those of doctoral students from other universities):	-
4) dissertations with a negative decision following the defense (including those of doctoral students from other universities):	-
5) dissertations submitted for revision (including those of doctoral students from other universities):	-
6) dissertations submitted for re-defense (including those of doctoral students from other universities):	-

Chairman of the Dissertation Council _____ Sartabanov Zh.

Scientific Secretary of the Dissertation Council _____ Seilova R.D.

Seal date "13" 05 2025