

Report on the work of the dissertation Council

Dissertation Council on metallurgy and materials science at the Kazakh national research technical University named after K. I. Satpayev on specialties (direction of training):

- 6D070900 - Metallurgy;
- 6D071000 – Materials science and technology of new materials.

1. Data on the number of meetings held – 12 meetings.

2. Full name (if any) of members of the dissertation Council who attended less than half of the sessions: none.

3. List of doctoral students indicating the organization of training:

- S. Dyussenova KazNRTU named after K.I. Satpayev;
- T. Osserov KazNRTU named after K.I. Satpayev;
- S. Jumankulova KazNRTU named after K.I. Satpayev;
- Ye. Tazhiyev KazNRTU named after K.I. Satpayev;
- N. Seidakhmetova “Kazakhstan-British Technical University” JSC;
- A. Alimzhanova KazNRTU named after K.I. Satpayev;
- M. Kurmanseytov KazNRTU named after K.I. Satpayev.

4. Brief analysis of dissertations considered by the Council during the reporting year

№	Full name of the doctoral student	Topics of work	Code and title of specialty
1	Symbat Dyussenova	Development the technology for the complex processing of man-made tailings of the Donskoy GOK	6D070900 - «Metallurgy»
2	Timur Osserov	Mechanochemical synthesis of sulfidizer for processing of copper ores	6D070900 - «Metallurgy»
3	Saltanat Jumankulova	Development of hydrometallurgical technology for processing vanadium-containing ores of Big Karatau	6D070900 - «Metallurgy»
4	Yeleussiz Tazhiyev	Development of technology for producing iron - manganese - chrome containing alloys from metal-containing waste on the basis of direct metal reduction	6D070900 - «Metallurgy»
5	Nazira Seidakhmetova	Development of a complex technology for processing black shale ores in Kazakhstan	6D070900 - «Metallurgy»
6	Aliya Alimzhanova	Development of advanced titanium – based alloys with a high level of mechanical and technological properties	6D071000 - «Materials science and technology of new materials»
7	Murat Kurmanseitov	Development of technology for producing cast iron and thermochemical transformation of its surface into steel	6D070900 - «Metallurgy»

4.1. The analysis of the subject of work of S. Dyussenova “Development of a technology for the complex processing of man-made tailings of the enrichment of Donskoy GOK”, submitted for the Ph.D.

The dissertation work of a doctoral student KazNRTU named after K.I. Satbayev Dyusenova S.B. devoted to the problems of processing poor chrome ores, increasing the recoverability of useful components from tailings and dumps, as well as the integrated use of ores. In this work, the problem is solved by the use of enrichment operations, chemical activation of raw materials and the use of a regenerated leaching reagent - ammonium hydrosulfate. As a result, the mechanism of transformation of the phases of the tailings of enrichment, the kinetics, and the mechanism of leaching were investigated.

A new method for the chemical activation of tailings of chromium ore beneficiation before gravitational beneficiation, by treatment with a solution of sodium hydrogen carbonate, changed the phase structure of the sludge, which made it possible to increase the extraction of Cr₂O₃ into a concentrate and to obtain high-quality chromium concentrate.

According to the developed method, the synthesis of ammonium hydrogen sulfate is carried out in an autoclave at a temperature of 230-260 ° C in a mixture of ammonium sulfate and sulfuric acid and, thereby, the use of expensive ammonium hydrogen sulfate for leaching is excluded.

A method for producing high-quality amorphous silicon dioxide has been developed, the difference of which is the use of sodium bicarbonate solution to neutralize the silicate solution to a pH of 9.0 ÷ 9.5.

Scientific research on the topic of the dissertation was carried out at the department "Metallurgy and mineral processing" KazNRTU named after K.I. Satbayev, in the laboratory of alumina and aluminum, JSC Institute of Metallurgy and Processing and at the University of Notre Dame.

Based on the results of scientific research, a technology is proposed for the integrated processing of tailings to obtain marketable products.

The connection of the topic of the dissertation with the directions of development of science, 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 main results and topics of the directions work of S. Dyussenova are related to the state program funded by the Ministry of Education and Science of the Republic of Kazakhstan on the priority "Rational use of natural resources, processing of raw materials and products" on the topic: "Determination of the concentration of rare and rare-earth metals in the redistribution of JSC TNK Kazchrome and development of a method for processing industrial products".

Analysis of the level of implementation of the thesis results in practice. According to the results of the thesis S. Dyussenova 12 scientific papers were published, of which: 2 articles in journals included in the Scopus database; 1 article in publications recommended by CCES MES RK for publication of the main results of research in technical sciences; 6 publications in the materials of international and national conferences, 3 patents for the invention of the Republic of Kazakhstan. The main provisions of the dissertation were reported and discussed at foreign international conferences: the international conference of the XIII International Mineral Processing and Recycling Conference, Serbia, 2019; 19th International Multidisciplinary Scientific GeoConference SGEM 2019, Bulgaria, 2019.

4.2 The analysis of the subject of work of T. Osserov "Mechanochemical synthesis of a sulfidizer for the processing of copper ores", submitted for the Ph.D.

The dissertation work of a doctoral student KazNRTU named after K.I. Satbayev Oserova T.B. is devoted to the problems of processing refractory copper ores, increasing the extraction of copper into concentrate, as well as the use of the hydrometallurgical method for processing copper concentrate containing chalcopyrite. In this work, the problem is solved by using enrichment operations using synthetic sodium polysulfide, mechanochemical activation of raw materials and the leaching process. As a result, the mechanism of sodium polysulfide synthesis was investigated, with its further use as a flotation reagent, the effect of mechanochemical activation on the leaching process of chalcopyrite-containing raw materials with solutions of nitric acid.

A new method for producing sodium polysulfide was to carry out direct synthesis between elemental sulfur and caustic soda in mechanochemical reactors of a planetary centrifugal mill. The modes of mechanical activation and the concentration of the initial reagents were selected, which made it possible to obtain, in addition to sodium sulfide, polysulfide Na_2S_5 with a yield of up to 42%.

A comparative analysis of the use of synthesized sodium polysulfide and sodium sulfide as flotation reagents in the beneficiation of copper ore showed that the use of sodium polysulfide increases the extraction of copper into concentrate by 2.27% for the ore of the Irtysh deposit and 1.72% for the ore of the Shatyrkol deposit.

It was shown that with mechanical activation of chalcopyrite in the presence of iron, reaction products are formed: troilite and chalcocite, and with further activation action, the formation of pure copper is possible. On the whole, upon mechanical activation of the copper concentrate, it was found that the intensity of the main peaks decreases and their significant broadening is observed, indicating the destruction of not only the main sulfide minerals, but also the host rocks.

The use of nitric acid in the leaching of mechanically activated copper concentrate made it possible to increase the extraction of copper into solution by 98%.

Scientific research on the topic of the dissertation was carried out at the department of "Metallurgical processes, heat engineering and technology of special materials" KazNRTU named after K.I. Satpayev, in the laboratory of mechanochemical processes of the Republican state enterprise on the right of economic management "Institute for Combustion Problems" and at the Rhine-Westphalian Technical University in Aachen, Institute of Geotechnics, Slovak Academy of Sciences.

The connection of the topic of the dissertation with the directions of development of science, 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 topics and research results of the dissertation work correspond to the State Program of Industrial and Innovative Development, the purpose of which is to stimulate diversification and increase the competitiveness of the manufacturing industry..

Analysis of the level of implementation of the thesis results in practice.

Based on the results of the dissertation work, Oserov T.B. published 8 scientific works, of which: 2 articles in journals included in the Scopus database; 3 articles in publications recommended by the CCES MES RK for publishing the main research results in technical sciences; 3 publications in materials of international conferences, of which: 9th International Conference on Mechanochemistry and Mechanical Alloying "INCOME 2017" (Slovakia); V International Conference "Fundamental Bases of Mechanochemical Technologies" (Russia); IX International Symposium "Physics and Chemistry of Carbon Materials / Nanoengineering" (Kazakhstan).

4.3 The analysis of the subject of work of S. Jumankulova "Development of hydrometallurgical technology for processing vanadium-containing ores of Big Karatau", submitted for the degree of doctor of Ph.D in the specialty 6D070900 - Metallurgy.

Dissertation work of a doctoral student of KazNRTU named after K.I. Satpayev Jumankulova S. is devoted to the problems of processing vanadium-containing ores of the Big Karatau. In this paper, the problem is solved by the possibility of obtaining vanadium pentoxide from vanadium-containing ores of the Big Karatau in the anode space with a combination of three operations-oxidation, vanadium leaching and activation of the leaching solution. As a result, new data were obtained on the characteristics of oxidized vanadium-containing ore from The balauskandyk and Kurumsak deposits. It is shown that vanadium in these ores is distributed scattered, unevenly in quantity, and is represented in hard-to-dissolve two, three, and four-valent forms.

For the first time, the mechanism of the sulfuric acid leaching of calcined ore in the presence of hydrogen peroxide was studied. Determined that:

– under conditions of oxidative roasting of ore together with carbonate and sodium chloride in the range of roasting temperatures of 700-850°C, duration $\tau=2$ hours, complete combustion of coal is achieved and a cinder with a high concentration of readily soluble pentavalent form of vanadium in the form of meta- (NaVO_4), ortho- (Na_3VO_4) and sodium pyrovanadate ($\text{Na}_4\text{V}_2\text{O}_7$);

– a positive effect of hydrogen peroxide on the sequence of reactions of the interaction of sodium vanadates with sulfuric acid and the completeness of their course has been established, while the values of the Gibbs energy loss of the reactions increase by 2.5 times compared with the data obtained by leaching without an oxidizing agent. The maximum extraction of vanadium into the solution (~ 80%) under cinder leaching is achieved with the following optimal parameters: consumption of $\text{H}_2\text{O}_2=10\%$ of the mass of cinder, $\text{C}_{\text{H}_2\text{SO}_4}=10\%$, temperature – 65°C, phase ratio S:L=1:4, $\tau=1$ hour.

For the first time, kinetic regularities and the mechanism of the processes of electrochemical leaching of various vanadium-containing materials were established depending on the influence of sulfuric acid concentration, duration, S:L ratio, temperature and current density, characterizing the course of processes in the diffusion region and their limitation by the growth of films of insoluble reaction products (oxides, sulfates metals) on the surface of grains. The optimal parameters of the electrochemical oxidation process were established: the concentration of the initial solution, $\text{C}_{\text{H}_2\text{SO}_4}=10\%$, temperature – 65°C, duration - 1 hour, phase ratio S:L=1:4, anode current density - 200 A/m², providing high vanadium recovery into the solution (up to 92%) from prebaked vanadium-containing ores.

Research on the thesis was conducted at the Department "Metallurgy and mineral processing" KazNRTU named after K.I. Satpayev Institute of geological Sciences named after K.I. Satpayev and in the laboratory of electrochemical technologies JSC "Institute of fuel, catalysis and electrochemistry named after D.V. Sokolsky".

Based on the results of scientific research, a basic technological scheme for processing hard-to-open vanadium-containing ores is proposed.

Connection of the dissertation subject with the directions of science development that 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. Key results and subject areas of the thesis S. Jumankulova associated with the state-funded program MES according to the priority "Rational use of natural resources, recycling of raw materials and products" in the years 2015-2017 on the theme: "Development of innovative technology for processing vanadium ores in Kazakhstan".

Analysis of the level of implementation of the results of the dissertation in practice. According to the results of the thesis S. Jumankulova published 9 scientific papers, including 1 article in a journal included in Scopus database; 3 articles in journals recommended by CCES MES RK for publication of the results of studies in engineering Sciences; 5 publications in proceedings of international conferences. The main provisions of the dissertation were reported and discussed at foreign international conferences: the 76th International scientific and technical conference "Actual problems of modern science, technology and education" (Russia, Magnitogorsk, 2018); the International scientific and practical conference "Intensification of hydrometallurgical processes of processing natural and man-made raw materials. Technologies and equipment" (Russia, Saint Petersburg, 2018); international conference " scientific research of the SCO countries: synergy and integration "(China, Beijing, 2018).

4.4 The analysis of the subject of work of Ye. Tazhiyev "Development of technology for producing iron - manganese - chrome containing alloys from metal- containing waste on the basis of direct metal reduction", submitted for the Ph.D.

The dissertation work of a doctoral student KazNRTU named after K.I. Satbayev Ye. Tazhiyev devoted to the preparation for processing of accumulated small waste from enrichment

of manganese ores at Zhairam MPP and chromite ores at Donskoy MPP and the development of technology for obtaining high-quality metal products from them - ferromanganese and ferrochrome, respectively.

A new technology has been developed for processing accumulated and current substandard industrial waste representing a small-scale fraction from the enrichment of manganese and chrome ores with an additional high recovery of valuable metals in commercial products - ferrochrome, ferromanganese and complex alloy - ferrochrome-manganese.

The technology eliminates the use of expensive coke and electric furnaces, which significantly reduces energy and material costs. Involvement in the processing of industrial waste will improve the environmental situation in the region and free up large areas of land used to store fine fraction of waste from enrichment.

Scientific research on the topic of the dissertation was carried out at the department "Metallurgy and mineral processing" KazNRTU named after K.I. Satpayev, at the department "Functional Nano systems and high-temperature materials, NRTU MISIS (Moscow, Russia) and at the KTH Royal Institute of Technology (Stockholm, Sweden).

The connection of the topic of the dissertation with the directions of development of science, 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 main results and topics of the directions work of Ye. Tazhiyev are related to the state program funded by the Ministry of Education and Science of the Republic of Kazakhstan on the priority "Rational use of natural resources, processing of raw materials and products" on the topic: "Scientific research of direct metal reduction and development of technology to produce a new manganese chromium-containing alloy from accumulated industrial waste".

Analysis of the level of implementation of the thesis results in practice. According to the results of the thesis Ye. Tazhiyev 10 scientific papers were published, of which: 1 article in journals included in the Scopus database; 4 articles in publications recommended by CCES MES RK for publication of the main results of research in technical sciences; 4 publications in the materials of international and national conferences, 1 patent for the invention of the Republic of Kazakhstan. The main provisions of the dissertation were reported and discussed at foreign international conferences: International Conference "Scientific research of the SCO countries: synergy and integration" China, 2018; Science - education - production: Experience and perspectives of development: XIV International scientific-technical conference, Russia, 2018.

4.5 The analysis of the subject of work of N. Seidakhmetova "Development of a complex technology for processing black shale ores in Kazakhstan", submitted for the Ph.D.

Dissertation work of a doctoral student of KBTU JSC Seidakhmetova N. M. is devoted to the problems of processing black shale ores in Kazakhstan. In this paper, the problem is solved by the possibility of obtaining vanadium, uranium, molybdenum and REM from the black shale ores of Bolshoy Karatau by a combined atmospheric autoclave method of opening the ore with subsequent sorption separation of vanadium, uranium, molybdenum and REM from accompanying impurity metals.

A new combined atmospheric-autoclave method for opening ore allows achieving a high degree of extraction in a solution of vanadium-94%, uranium-98%, molybdenum-85% and rare earth metals-80% without adding oxidants.

According to the developed method, leaching of metals is carried out in 2 stages: first the ore is leached under atmospheric conditions with a weak solution of sulphuric acid, which removes heterogeneous katolicheskii strannogo uglekislogo gas, the second stage leaching of ore is carried out in an autoclave at a temperature of 140-150 °C, sulfuric acid concentration of 140-150 g/dm³ and thus no flow of oxidants in the autoclave.

Research on the thesis was carried out in JSC "Kazakh-British Technical University", in the laboratory of rare metals RSE "national center on complex processing of mineral raw materials

of Kazakhstan" and in the Department for Complex Processing of Mineral Raw Materials, JSC "Leading Scientific Research Institute of Chemical Technology".

Based on the results of scientific research, a technology for complex processing of black shale with the extraction of vanadium, uranium, molybdenum and rare earth metals, by opening the ore by atmospheric autoclave method, is proposed.

The connection of the topic of the dissertation with the directions of development of science, 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. Key results and subject areas of the thesis N. Seidahmatova associated with the state program "Scientific and technical development of rare-metal industry in Kazakhstan" (No. 0072/HOPF from 16.01.2012 years) on the topic: Development of process procedures of a pilot section of output of 15,000 t/y of ore.

Analysis of the level of implementation of the thesis results in practice. According to the results of the thesis N. Seidahmatova 12 scientific papers were published, of which: 1 articles in journals included in the Scopus database; 6 article in publications recommended by CCES MES RK for publication of the main results of research in technical sciences; 5 publications in the materials of international and national conferences. The main provisions of the dissertation were reported and discussed at foreign international conferences: at the international scientific and practical conference "Mining Sciences in the industrial and innovative development of the country", Almaty, 2015; at the international conference "Scientific and technical support of mining production", Almaty, 2016.

4.6 The analysis of the subject of work of A. Alimzhanova "Development of promising titanium-based alloys with a high level of mechanical and technological properties", submitted for the degree of doctor of PhD in the specialty 6D071000-Materials Science and technology of new materials.

Dissertation work of a doctoral student of KazNTU named after K. I. Satpayev Alimzhanova a.m. is devoted to the problems of obtaining heat-resistant titanium alloys that can provide long-term operation of machines and mechanisms in the temperature range 600-700 ° C. It is known that as a result of alloying, thermal and thermomechanical processing, it is possible to obtain the desired set of properties of most industrial alloys, including those based on titanium. However, the difficulty of solving this problem is that, unlike most industrial alloys based on iron and Nickel, titanium alloys are characterized by high structural sensitivity to the concentration of alloying elements, thermal and thermomechanical treatment modes. The result was studied based on structural-phase composition and properties of alloys based on titanium, you need a comprehensive study of features of physicochemical interaction of components of titanium alloys at the stage of their receipt in the field of liquid-solid state and subsequent cooling. In this paper, the problem is solved by constructing phase diagrams of multicomponent systems based on titanium and studying the laws of phase transformations depending on their composition and temperature. Knowledge of phase diagrams also makes it possible to establish optimal scientifically-based modes of preliminary and final processing of the corresponding titanium alloys and products made from them, including various types of thermal and deformation effects for the formation of their specified structural-phase state and their properties.

Based on the established regularities of phase transformations, the choice of the optimal composition of the ti-43Al-4Nb-1Mo titanium alloy is scientifically justified, and optimal modes of melting, casting, and heat treatment are proposed.

Research on the topic of the dissertation was conducted at the Department of metallurgy and mineral processing KazNRTU named after K.I. Satbayev and the Engineering center "Innovative foundry technologies and materials" at NUTS MISIS (Russia).

The connection of the topic of the dissertation with the directions of development of science, 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. Key results and subject areas of the thesis Alimzhanova A. M. associated with the state-funded program MES according to the priority "Rational use of natural resources, recycling of raw materials and products" on the topic: "Development of advanced titanium alloys with high strength and processability".

Analysis of the level of implementation of the thesis results in practice. According to the results of the thesis Alimzhanova A. M. published 10 publications, including 3 in journals recommended by Committee for control in education sphere and science MES RK, 2 articles in scientific journal included in the database Web of Science Core Collection (Metal Science and Heat Treatment with impact factor 0,215). The main provisions and results of the work were presented at International conferences in the form of oral and poster presentations: international scientific and practical conference "Scientific and personnel support of innovative development of the mining and metallurgical complex". April 27-28, 2017, Almaty, Kazakhstan; XIV INTERNATIONAL SCIENTIFIC CONGRESS MACHINES. TECHNOLOGIES. MATERIALS: Year I, Issue 4(4), Vol. IV, TECHNOLOGIES. VARNA, BULGARIA. 13-16. 09. 2017, 2nd international forum "Technojuniti-Electron beam technologies for microelectronics". October 9-21. 2017. Moscow. Received a patent.

4.7 The analysis of the subject of work M. Kurmanseytov «Development of technology for producing cast iron and thermochemical transformation of its surface into steel», submitted for the degree of doctor of PhD in the specialty 6D070900-metallurgy.

Dissertation doctoral KazNTU named after K. I. Satpayev Kurmanseitov M.B. is dedicated to the development of technology to produce iron metal and thermo-chemical conversion of the surface into steel. The smelting of cast iron and the production of cast metal products from it are affordable and low-cost, compared to the production of steel and steel structures. The results of the experimental studies obtained in this work can be used in the production of metal products and structures using cast iron and open up the prospect of developing small and medium-sized businesses.

The most widespread in practice is the production of direct parts and finished products from cast iron by casting a special model. The most common technology is its implementation in order to increase the surface strength of the resulting cast iron products and parts by coating it with precious metal melts. To improve the strength, the use of special features of physical and chemical processes occurring in the inner layer of cast iron has not yet begun. The study and implementation of such technology is an urgent problem. The research work provided by the project is designed to find solutions to these problems.

It is established that the thermochemical treatment of the surface of cast iron products in the solid-phase state according to the developed method allows to transform its surface layer into a steel coating. The depth of the steel coating depends on the heating temperature and the holding time of the system. As the thickness of the steel coating increases, the cast-iron product acquires ductility and impact strength. The organization of such a technological process has a long-term development and high technical and economic indicators.

Research on the topic of the dissertation was conducted at the Department of metallurgy and mineral processing Of KazNTU named after K. I. Satpayev, at the Department of Powder metallurgy and functional coatings of nust MISIS (Moscow, Russia) and at the Royal University of Technology (KTN, Stockholm, Sweden).

Connection of the dissertation subject with the directions of science development that 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. Key results and subject areas of the thesis Kurmanseitov M.B. associated with the state-funded program MES according to the priority «Development of scientific bases and technologies of creation of new perspective materials of a various functional purpose» according to the theme: «Development of the scientific basis for the continuous process of reducing melting of concentrates and secondary materials for the production of structural steel».

Analysis of the level of implementation of the results of the dissertation in practice. According to the results of the thesis Kurmanseitov M.B. published 9 scientific papers, including 1 article in journals included in the database Scopus, 4 articles in publications recommended by CCES MES RK for publication of the main results of research in technical sciences; 4 publications in proceedings of international and national conferences. The main provisions of the dissertation were presented and discussed at international conferences: international conference VII Eurasian scientific and practical conference «Strength of heterogeneous structures of the earth», Russian, 2016; International Conference on Research Challenges to multidisciplinary innovation: Conference Proceedings, USA, 2018;

5. Analysis of the work of official reviewers (with examples of the most low-quality reviews)

№	Full name of the doctoral student	Reviewers	
		Full name of the first reviewer (position, academic degree, title, number of publications in the specialty for the last 3 years)	Full name of the second reviewer (position, academic degree, title, number of publications in the specialty for the last 3 years)
1	S. Dyussenova	B. Svyatov – Doctor of Technical Sciences, Chairman of the Supervisory Board of “Adis Solution” LLP (5 publications on specialty 6D070900 - Metallurgy)	M. Kopbayeva – Candidate of Chemical Sciences, Deputy General Director for Research “Institute of High Technologies” LLP (5 publications on specialty 6D070900 - Metallurgy)
2	T. Osserov	Baeshov A. – Doctor of Chemical Sciences, Head of the laboratory of «Electrochemical technologies» JSC «Institute of organic catalysis and electrochemistry named after D. V. Sokolsky», Almaty, Kazakhstan (5 publications on specialty 6D070900 - Metallurgy)	Koyzhanova A. - Candidate of Technical Sciences, Head of the Laboratory of «Special methods of hydrometallurgy» JSC «Institute of metallurgy and beneficiation». Almaty, Kazakhstan (5 publications on specialty 6D070900 - Metallurgy)
3	S. Jumankulova	Baeshov A. – Doctor of Chemical Sciences, Head of the laboratory of «Electrochemical technologies» JSC «Institute of organic catalysis and electrochemistry named after D. V. Sokolsky», Almaty, Kazakhstan (5 publications on specialty 6D070900 - Metallurgy)	Khomyakov A. – Candidate of Technical Sciences, The branch of the Republican state enterprise «National center on complex processing of mineral raw materials of the Republic of Kazakhstan» state scientific production association of industrial ecology «Kazmekhanobr», «Technologies of electrochemical productions» Lab, Almaty, Kazakhstan (5 publications on specialty 6D070900 - Metallurgy)
4	Ye. Tazhiyev	Namazbayev S.K. – Candidate of Technical Sciences, Expert Consultant of “National center of high technologies and energy saving” LLP, Almaty, Kazakhstan	Kelamanov B.S. – Candidate of Technical Sciences, docent. Associate Professor of the Department of “Metallurgy, mining and oil and gas industry”, Aktobe,

		(5 publications on specialty 6D070900 - Metallurgy)	Kazakhstan (5 publications on specialty 6D070900 - Metallurgy)
5	N. Seidakhmetova	Ultrakova A. – Candidate of technical sciences, head of the laboratory “Titanium and rare refractory metals”, “Institute of Metallurgy and Ore Beneficiation”, Almaty, Kazakhstan (5 publications on specialty 6D070900 - Metallurgy)	Altaibayev B. - PhD, Researcher of the underground leaching laboratory of the “Institute of High Technology” LLP, Almaty, Kazakhstan (5 publications on specialty 6D070900 - Metallurgy)
6	A. Alimzhanova	Kanayev A. – Doctor of Technical Sciences, professor at the Department "Standardization, metrology and certification" of the Kazakh Agrotechnical University named after S. Seyfullin, Nur-Sultan, Kazakhstan (5 publications in the specialty 6D071000- Materials science and technology of new materials)	Baisanov S. – Doctor of Technical Sciences, professor, Director of the Chemical and metallurgical Institute named after Zh. Abishev, Kazakhstan, Karaganda (5 publications in the specialty 6D071000- Materials science and technology of new materials)
7	M. Kurmanseitov	Khassen B.P. – Director of «Institute for the Study of Complex Mineral Development» LLP, Karaganda, Kazakhstan (5 publications on specialty 6D070900 - Metallurgy)	Smagulov D. – Doctor of Technical Sciences, professor at the Department "Engineering Physics" of the KazNRTU named after K.I. Satbayev (5 publications on specialty 6D070900 - Metallurgy)

All reviews of reviewers are quite detailed, high-quality and correspond to paragraph 28 of the Model regulations on the dissertation Council.

6. Proposals for further improvement of the system of training scientific personnel.

Increase the requirements for the work of scientific consultants (especially from Kazakhstan) doctoral students in terms of the proposed topics of dissertation research and their leadership in the training of scientific personnel.

7. Data on the considered dissertations for the degree of doctor of philosophy PhD, doctor of profile

Dissertation Council	Code and title of specialty	Code and title of specialty
	6D070900 - "Metallurgy"	6D071000 - "Materials science and technology of new materials»
Dissertations accepted for defense	6	1
Including doctoral students from other universities	1	-
Dissertations withdrawn from consideration	-	-
Including doctoral students from other universities	-	-

Dissertations that received negative reviews from reviewers	-	-
Including doctoral students from other universities	-	-
Dissertations with a positive decision on the results of the defense	6	1
Including doctoral students from other universities	1	-
Dissertations with a negative decision on the results of the defense	-	-
Including doctoral students from other universities	-	-
Total number of defended theses	6	1
Including doctoral students from other universities	1	-

Chairman
of the dissertation Council

Bagdaulet K. Kenzhaliyev

Scientific Secretary
of the dissertation Council

Guinara Zh. Moldabayeva

