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|---|---|---|---|
| full name | ***Kakimov Ulan Kadyrhanuly*** | | |
| position | *Head of Department, Associate Professor* | | |
| Academic career | *Initial academic appointment*<br>Habilitation [German doctoral qualification] (subject)<br>*Doctorate degree (Pressure treatment technologies and machines)*<br>*Bachelor's degree (Metallurgical Machinery and Equipment)* | *MMI*<br>*MMI*<br>*Candidate of Technical Sciences.*<br>*Master of Metallurgy*<br>*Candidate of Technical Sciences* | *2004*<br>*2022*<br>*2007*<br><br>*2012* |
| Employment | *Head of Department* | Satbayev University | *2024- up to now* |
| Research and development projects over the past 5 years | - | | |
| Industry cooperation over the past 5 years | - | | |
| Patents and property rights | *Copyright certificate "Rolling Mill"* | | *2006* |
| Important publications over the last 5 ye*ars* | *Selected recent publications from a total of approx. (7):*<br>*1. Kuandykov T., Nauryzbayeva D., Yelemessov K., Karmanov T., Kakimov U., Kolga A. Development and justification of a hydro-impulse method for increasing ore permeability in conditions of uranium borehole production// News of the National Academy of Sciences of the Republic of Kazakhstan, Series of Geology and Technical Sciences*<br>*2. G. Yeshmanova, C. Blawert, M. Serdechnova, M. Starykevich, U. Kakimov, T. Wu, V. Kasneryk, T. Shulha, D. Smagulov, M. L. Zheludkevich Influence of different Si sources on plasma electrolytic oxidation coating formation, morphology and composition// Journal of Alloys and Compounds, Volume 1036, 20 July 2025, 181845.*<br>*https://doi.org/10.1016/j.jallcom.2025.181845*<br>*3. Kunarbekova M., Khalkhabai B., Kakimov U., Kuldeyev E.; Berndtsson R., Lee J., Azat, S. Performance of a Zeolite-Filled Slow Filter for Dye Removal and Turbidity Reduction. Water 2025, 17, 3557. https://doi.org/10.3390/w17243557*<br>*4. U.K. Kakimov, A.A. Kaipova Thermomechanical processing of HSLA steels: Overview. Engineering Journal of Satbayev University, Volume 147 (2025), Issue 4, 9-15.*<br>*https://doi.org/10.51301/ejsu.2025.i4.02*<br>*5. Zhuangzhuang Qu, Ulan Zhantikeyev, Ulan Kakimov, Kainaubek Toshtay, Kanay Rysbekov, Nur Nabihah Binti Yusof, Ronny Berndtsson, Seitkhan Azat Advances and prospects of modified activated carbon-based slow sand filtration for microplastic removal// Water 2026, 18, 228. https://doi.org/10.3390/w18020228* | | |
| Activities in specialized bodies over the past 5 years | *Center for International Programs* | *Member of the independent commission* | *2019-2025* |

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| full name | ***Smagulov Dauletkhan Uyalovich*** | | |
| position | *Professor* | | |
| Academic career | *Assistant*<br>*Docent*<br>*Doctor of Technical Sciences*<br><br>*Professor)* | Satbayev University<br>Satbayev University<br>Satbayev University<br>Satbayev University | *1975*<br>*1987*<br>*2000*<br><br>*2002* |
| Employment | Teacher | Satbayev University | From 1975 to the present |
| Research and development projects over the past 5 years | *1. Scientific and technical project on grant financing, topic No. 747.MON.GF.12.18 - "Creation of nanostructured organic, polymer solar cells (Solar Cells) for the conversion of solar energy into electrical energy".*<br>*2. Scientific and technical project on grant financing, topic No. 747.MON.GF.12.17 - "Development of theoretical foundations for the creation of new promising alloys and functional materials with a given level of properties".*<br>*3. Topic No. 740 MON.11 - "Development of technology for the production of organic phtoelements and nanocomposite materials based on carbon nanotubes".*<br>*4. Commercialization Project No. 100-GC-16 - "Creation of pilot production of innovative aluminum alloys from domestic raw materials and finished products from them with nanostructured protective ceramic coating", 2017-2019.* | | |
| Industry cooperation over the past 5 years | *Commercialization Project No. 100-GC-16 - "Creation of pilot production of innovative aluminum alloys from domestic raw materials and finished products from them with nanostructured protective ceramic coating", 2017-2019.*<br>*Mechanics LLC - NUST MISIS (Russia); Alakol Plant LLP (Kazakhstan).* | | |
| Patents and property rights | *Heat-resistant aluminum alloy and a method for obtaining deformed semi-finished products from it* | *Application for a patent of the Republic of Kazakhstan. No. 2020/042.2020* | |
| Important publications over the last 5 years | *Selected recent publications from the total.*<br>*(specify the total number): more than175 scientific papers*<br>*Akhmetova, D.U. Smagulov.Computerized procedures for quantitative image processing of pipe steel structures., Steel, 55-59, 2019.*<br>*Akhmetova G. E., Kozha E., Vyatkina A. K., Smagulov D. U. The effect of electrolyte-plasma treatment on the structure of 45G steel.. Metallology and Heat Treatment of Metals, No. 11 (773), November 2019.*<br>*A.V. Kudrya, E. A. Sokolovskaya, V. Yu. Perezhogin, D.Yu. Smagulov, Measurement of characteristics of banded microstructure in sheet steels. Metallurg 62 (11-12), 1225-1231,2019.*<br>*Aliya Amenova, Dauletkhan Smagulov. Quantitative analysis of the phase diagram of Al - Ni - Fe - Mn - Zr - Si as the basis of heat-resistant* | | |

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| | *cast aluminum alloys of a new generation. IX International Scientific and Practical Conference "News of scientific progress - 2013". Byal GRAD-BG (Sofia, Bulgaria). ISBN 978-966-8736-05-6.*<br>*Aliya Amenova, Nikolay Belov, Dauletkhan Smagulov, Ainagul Toleuova. A scientifically based choice of heat-resistant cast aluminum alloys of a new generation. 2013 2nd International Conference on Advanced Materials Design and Mechanics. Kuala Lumpur, Malaysia. International Journal of Applied Mechanics and Materials [ISSN:1660-9336, Trans Tech Publications]. Indexing: EI Compendex, Scopus, Cambridge Scientific Abstracts, Google Scholar.*<br>*Amenova A.A., Smagulov D.U., Dostaeva A.M. - Optimization of the composition of new industrial economically alloyed heat-resistant aluminum alloys. IX International Scientific and Practical Conference "Modern scientific achievements–2013". Publishing house "Education and Science" s.r.o. (Czech Republic, Prague).*<br>*Amenova A.A., Belov N.A., Smagulov D.U. Computational analysis of the effect of iron, manganese and silicon on the nonequilibrium crystallization of aluminum alloys containing 2% nickel. Journal of Metal Science and Heat treatment of Metals, Russia, Moscow. Journal of Metal Science and Heat Treatment, Springer Publishing House.*<br>*Zharkynai Kuanyshbekova, Dauletkhan Smagulov, Anyar Zahidov. Lightweight dye-sensitized solar cells with charge collectors made of doped carbon nanotubes. The Second International Symposium on Nanotechnology, Energy and Space, Chernogolovka, Moscow Region, Russia, August 3-5, 2011.* |
| Activities in specialized bodies over the past 5 years | *Member of the Dissertation Council for the defense of doctoral dissertations* *Deputy Chairman* *for the last 10 years* |

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| full name | ***Baitimbetova Bagila Abdisamatovna*** | | |
| position | *associate professor* | | |
| Academic career | *Initial academic appointment*<br>*Habilitation [German doctoral qualification] (subject)*<br>*Doctoral degree (Condensed Matter Physics)*<br>*Academic title of DCNo.0000135, 18.04.2016*<br>*Education (Physicist. Physics teacher)* | KazNU named after al-Farabi, .<br>Candidate of Physical and Mathematical Sciences<br>Associate Professor | 1996г<br>*2007*<br>*2016*<br>*1997* |
| Employment | Associate Professor | Satbayev University | *from 2005 to the present* |
| Research and development projects over the past 5 years | Leading researcher under the PCF program Development of scientific foundations for the creation of new nanomaterials and methods of their analysis for obtaining films with specified useful properties of the RK" (PCF BR05236404) for the period 2018-2020 | | |
| Industry cooperation over the past 5 years | - | | |
| Patents and property rights | *Copyright certificate" Method of obtaining graphene"*<br>*Author's certificate "Method of obtaining carbon nanostructures by magnetron reactive sputtering of graphite in sublimated vapors of aromatic hydrocarbons"* | | 2013/0559.1<br>2013/0803.1 |
| Important publications over the last 5 years | *Selected recent publications from the total (10):*<br>*1. B.A. Baitimbetova, D. W. Boukhvalov , K. A. Mit' , T. S. Turmagambetov Baitimbetova, A.S. Serikkanov. An Approach to the Improvement of Graphene Production by Ultrasonic-Bath Treatment. Q1. Nanomaterials 2025, 15, 817. https://doi.org/10.3390/nano15110817. Cited: ~1*<br>*2. Baitimbetova B.A., Ryabikin Y.A., Rakymetov B.A., Murzalinov D.O., Kantarbaeva D.O, Duamet B., Dmitriyeva EA, Serikkanov AS, Yelemessov K. Paramagnetic Properties of Carbon Films. Coatings. Q2, 2023 IF 3.4, Сконус 64, Aug 22;13(9):1484. https://doi.org/10.3390/coatings13091484. Cited: ~2*<br>*2. Dmitriyeva E. A., Lebedev I., Bondar E., Fedosimova A., Temiraliev A., Murzalinov*<br>*D., Ibraimova S.A., Nurbaev B., Elemesov K., Baitimbetova B. A. The Influence of Lyophobicity and Lyophilicity of Film-Forming Systems on the Properties of Tin Oxide Films. Coatings. 2023 12, -P. 1990. Q2, IF 3,4 , Сконус 64. DOI:10.3390/coatings13121990. Cited: ~4*<br>*3. E.A. Dmitriyeva, I.A. Lebedev, E.A. Bondar, A.I. Fedosimova,S.A. Ibraimova1, B.M. Nurbaev, A.S. Serikkanov, B.A. Baitimbetova. Influence of Annealing Time on the Optical and Electrical Properties of Tin Dioxide-Based Coatings. Eurasian Chem.-Technol. J. 25. 2023. 211–217. IF 3.4. Сконус 22%. https://doi.org/10.18321/ectj1543. Cited: ~5*<br>*4. Baytimbetova B. A., Ryabikin Yu. A., Mukashev B. N. Study of paramagnetic properties of graphene structures obtained from pure graphite in organic reagents exposed to ultrasound. Vol. 64, 2, pp. 209–215, June, 2021. DOI:10.1007/s11182-021-02318-1. Baitimbetova B. A., Correction Russian Physics Journal, Vol. 64, No. 8, December, 2021. Квартиль - Q4. Percentile – 34% Cited: ~ 1. (Thomson Reuters, IF 0,* | | |

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| | *671). DOI 10.1007/s11182-021-02494-0.*<br>*5. Murzalinov, D.O., Shaikenova, A.A., Umirzakov, A.G., Dmitriyeva, Y.A., Rakymetov, Baitimbetova B.A. Increasing the photoluminescence intensity of silicon nitride by forming K and N radioactive centres. //Journal of Physics: Conference Series. 2155 (2022) 012008 . IOP Publishing doi:10.1088/1742-6596/2155/1/012008. Cited: ~1*<br>*6. Baitimbetova B.A, K.S. Tolubayev , Yu.A. Ryabikin , D.O. Murzalinov , B.A. Zhautikov , G.S. Dairbekova The study of carbon nanomaterials by IR-Fourier spectroscopy, obtained by the action of an ultrasonic field on graphite. Q4. DOI 10.31489/2022PH2/127-132. Cited: ~4*<br>*7. A.I. Fedosimova, B.A. Baitimbetova, V. Kudryashov, B.N. Mukashev, Yu.A. Ryabikin, A.T. Temiraliev Extraction of signal from noise in the study of nanoscale structure spectra.*<br>*Recent Contributions to Physics, No. 1(72), 2020, pp. 67–72. Q4. https://doi.org/10.26577/RCPh.2020.v72.i1.08 https://bph.ka.zknzu*<br>*8. Baitimbetova B.A., Ryabikin Yu.A. Monograph: Prospects for the Creation and Study of Carbon Nanostructures. Almaty, 2020, 221 pages.*<br>*9. Ryabikin Yu.A., Baitimbetova B.A., Ibraeva Zh.E. Study of changes in the shape of EPR spectra in a model polymer.Vestnik KazNITU, No.1, 2020, pp. 139–144*<br>*https://official.satbayev.university/download/document/14380/%D0%92%D0%95%D0%A1%D0%A2%D0%9D%D0%98%D0%9A-2020%20%E2%84%961.pdf*<br>*10. Ryabikin Yu.A., Baitimbetova B.A., Lebedev I.A., Serikkanov A.S.EPR detection of carbon films on selected substrates. Combustion and Plasma Chemistry, No.3, 2019, pp. 184–188..*<br>*https://www.elibrary.ru/item.asp?id=41433256*<br>*11. Baitimbetova B.A., Vermenichev B.M., Ibraeva Zh.E., Ryabikin Yu.A. Microscopic study of the surface of printing paper modified with gold and silver nanoparticles. Combustion and Plasma Chemistry, No.17, 2019, pp. 209–213.https://official.satbayev.university/ru/research/vestnik-satbayev-university/publications.*<br>*https://official.satbayev.university/download/document/2019%20%E2%8f*<br>*Baitimbetova B.A. Study of paramagnetic properties of graphene structures obtained by the influence of ultrasound on pure graphite in organic reagents 2020, 2 2021// Russian physics journal . ISI Web of Knowledge, Thomson Reuters, IF 0, 67)*<br>*Ryabikin Yu.A., Baytimbetova B.A., Lebedev I.A., Serikkanov A.S. Studying the dependence of the EPR signal parameters of a carbon film on quartz, glass and silicon substrates with their different orientation relative to the magnetic field // Journal of the Ministry of Education and Science of the* |
| Activities in specialized bodies over the past 5 years | *- Member of the Dissertation Council for the defense of doctoral dissertations* |

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| full name | **Beisebayeva Aigul Samsalyevna** | | |
| position | *associate professor* | | |
| Academic career | *Initial academic appointment*<br>*Habilitation [German doctoral qualification] (subject)*<br>*Doctoral degree (01.03.02. – Astrophysics and Radio Astronomy)*<br>*Bachelor's degree (Physicist. Physics teacher)* | KazNU named after al-Farabi, .<br>Candidate of Physical and Mathematical Sciences | 2000 г<br><br><br>*2010*<br><br>*2016* |
| Employment | Associate Professor | Satbayev University | *from 2022 to the present* |
| Research and development projects over the past 5 years | 1. AP61100197 "Monitoring bioaccumulation of heavy metals in food chains at the nanoscale to reduce their impact on the ecosystem", scientific supervisor, Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan, 2025-2027<br>2. BR21881939 on the topic: "Development of resource-saving energy-generating technologies for the mining and metallurgical complex and the creation of an innovative engineering center" leading researcher, Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan, 2023-2025<br>3. AP05132854 Interrelationship of nonlinear electrical, optical and fractal-geometric characteristics of nanostructured semiconductors, leading researcher, 2018-2020.<br>4. IPS36 - "Structure of chaos in signals of variable stars, solar radio emission and in the distribution of matter in galaxies", Grant funding of scientific research, Co-director of the project, 2013 1513/GF3<br>5. ITT-7 /2012 Development of a universal pattern recognition algorithm based on nonlinear physics methods, business agreement, leading researcher<br>6. Frequency, information and energy efficiency of ultra-wideband telecommunication systems, leading researcher, 2012-2014.<br>7. FI/1642 "Development of processes for the formation of radiating structures in the IR and visible range with quantum dots of A3B5 and group IV semiconductors in SiO2 and Si, leading researcher, 2012. | | |
| Industry cooperation over the past 5 years | - | | |
| Patents and property rights | Patent for a utility model "Method for processing rare metal ore waste" | | 2025/0664.2 |
| Important publications over the last 5 years | *Selected recent publications from the total (10):*<br>1. T. T. Mashan; M.Hashami; N. S. Bergeneva; N. N. Nurmukhanbetova; A. S. Beisebayeva; M.Nazhipkyzy; G.U. Mamatova; A. G. Zhaxybayeva A Comprehensive Overview of Co3O4 Nanoparticles: Solution Combustion Synthesis and Potential Applications Nanomaterials 2025-06-16 \| DOI: 10.3390/nano15120932<br>2. M. Kunarbekova, Y. Yeszhan, S. Zharylkan, M. Alipuly, U. Zhantikeyev, A. Beisebayeva et al., The State of the Art of the Mining and Metallurgical Industry in Kazakhstan and Future Perspectives: A | | |

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| | Systematic Review. ES Materials and Manufacturing, Том 25, 2024, https://doi.org/10.30919/esmm1219<br>3. A. S. Berkinbayeva, M. Nazhipkyzy, M. Hashami, Zh. B. Kudyarova, T. Mashan, A.S. Beisebayeva et al., **The Significant Role of Mxene's Derivatives and Composites in Supercapacitors: A Review.** ES Energy Environ., 2025, 27, 1422 https://dx.doi.org/10.30919/ee1422<br>4. Beisebayeva A., Zhantikeyev U.Ye., Kunarbekova M.S. et al., Transformation of mining and metallurgical waste into functional materials: overview of technologies and applications. Integrated use of mineral raw materials 2024 г. ISSN 2707-9481. https://doi.org/10.31643/2026/6445.08<br>5. Beisebayeva A., Y. Yeszhan, S. Zharylkan, et al., Methods of processing waste from mining and metallurgical production. Mining magazine of Kazakhstan No. 8 2024. ISSN 2227-4766. DOI:10.48498/minmag.2024.233.9.002<br>6. O. Narivs'kyi, R. Atchibayev,A. Kemelzhanova, G. Yar-Mukhamedova, Beisebayeva A., et al., Mathematical Modeling of the Corrosion Behavior of Austenitic Steels in Chloride-Containing Media During the Operation of Plate-Like Heat Exchangers. Eurasian Chemico-Technological Journal №24, 2022, ISSN: 1562-3920 pp.295–301 https://doi.org/10.18321/ectj1473 |
| Activities in specialized bodies over the past 5 years | - |

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| full name | ***Azat Seikhan*** | | |
| position | *Professor* | | |
| Academic career | –<br>Bachelor's degree<br>Master's degree<br>Doctoral studies<br>Professor | Faculty of Chemistry and Chemical Technology, Department of Chemical Physics and Materials Science. Al-Farabi Kazakh National University, | 2004-2008<br>2008-2010<br>*2012-2015*<br>*2019* |
| Employment | Position | Employer | Period |
| | Professor | Department of Materials Science, Nanotechnology and Engineering Physics, Satbayev University | Since 2021-22 academic year |
| | Scientific Editor | Of The Journal Bulletin of Satbayev University | 2021-2022. |
| | Head of LIP (Laboratory of Engineering Profile) | Satbayev University | Since March 01, 2021. |
| | Associate Professor | Department of "Chemical Processes and Industrial Ecology" | 2020-21 academic year |
| | Deputy Director for Scientific and Educational Activities | Institute of Chemistry and Biological Technology, Satbayev University | From June 15, 2020 – June 15, 2021. |
| | Acting Head of the laboratory | Laboratories of Carbon Nanomaterials and Nanotechnologies, RSE on PCV Institute of Combustion Problems | From March 02, 2020 – June 09, 2021. |
| | Head of Production center | "SINGO"filters with replaceable cartridge for water | From January 05, 2020. |
| | Instructor of school projects | Nazarbayev Intellectual School, Almaty | October, 2017 – May, 2019 |
| | Methodist | Republican Educational and Methodological Center of Civil Protection | June – October, 2017 |
| | Post Doctor | Nazarbayev University, School of Engineering (Environmental Science & Technology Group), Astana, Kazakhstan | November, 2015 – August 2019. |

<table>
<tr><td>Research and development projects over the past 5 years</td><td>Projects<br>Horizon-Europe Project<br>Marie Skłodowska-Curie Actions Staff Exchanges project 101131382 “Multifunctional sustainable adsorbents for water treatment assisted with plasma technologies and for health protection from xenobiotics” – CLEANWATER funded by the European Union under Horizon-Europe Programme (PI from KZ).<br>The NATO Project:<br>1. Valorization of biomass waste into High efficient materials for CBRN protection. 2019-2022 (Co-PI)<br>KZ projects<br>1. AP09058425 "Development of an innovative technology for obtaining a premix from vegetable raw materials to improve the protein value of local feed for cattle" (GF of young scientists 2021-2023). (PI)<br>2. BR11765599 Development and improvement of natural water purification technologies and improvement of drinking water quality in the regions of Kazakhstan (Ministry of Education and Science of the Republic of Kazakhstan 2022-23); (PI of the sub-topic).<br>3. AP14869499 Plasma water purification for decomposition of persistent polymer and organic pollutants: from micro-to nanoparticles to molecules (2022-2024). (PI)<br>4. BR21881939-OT-23 Development of resource-saving energy-generating technologies for the mining and metallurgical complex and creation of an innovative engineering center 2023-2025 Mega grant (PI of the sub-topic).<br>5. BR24992873 Development of efficient nanocomposites based on MXene to create a new generation of electric energy storage devices. Competition on program-targeted financing for scientific, scientific and technical programs for 2024-2026 (PI)<br>6. AP23489574 Modified activated carbon filter system for efficient removal of organic substances and microplastics while slowly filtering recycled water. Competition for grant financing for scientific and (or) scientific and technical projects for 2024-2026 (Ministry of Science and Higher Education of the Republic of Kazakhstan) (PI)</td></tr>
<tr><td>Industry cooperation over the past 5 years</td><td>An advanced wastewater treatment system with a capacity of 20 tons per day has been developed and successfully implemented in cooperation with LUKOIL company. The technology demonstrates high efficiency in removing contaminants from industrial wastewater and confirms its readiness for large-scale industrial deployment.</td></tr>
<tr><td>Patents and property rights</td><td><table><tr><td>Name</td><td>Year</td></tr><tr><td>Method of obtaining MAX-phase</td><td>2025</td></tr><tr><td>Portable individual filter for receiving fresh water in field services</td><td>2024</td></tr><tr><td>METHOD OF PROCESSING OF RARE-METAL ORE WASTES</td><td>2025</td></tr><tr><td>Method of preparation of sorbent for water purification from radionuclides</td><td>2024</td></tr><tr><td>Method of producing sorbent for purifying water from microplastics</td><td>2023</td></tr></table></td></tr>
<tr><td>Important publications over the last 5 years</td><td>1. Toshtay, K., Auyezov, A., Korkembay, Z., Toktassynov, S., Seytkhan, A., & Nurakyshev, A. (2021). Partial hydrogenation of sunflower oil on platinum catalysts: Influence of process conditions on the mass content of geometric isomers. Molecular Catalysis, 513, 111819. doi:10.1016/j.mcat.2021.111819<br>2. Aliya Satayeva, Alzhan Baimenov, Seitkhan Azat, Ulan Zhantikeyev, Aknur Seisenova, and Zhandos Tauanov. Review on coal fly ash generation and utilization for resolving mercury contamination issues in Central Asia: Kazakhstan. Environmental Reviews. 2022 https://doi.org/10.1139/er-2021-0035<br>3. Jandosov, J.; Alavijeh, M.; Sultakhan, S.; Baimenov, A.; Bernardo, M.; Sakipova, Z.; Azat, S.; Lyubchyk, S.; Zhylybayeva, N.; Naurzbayeva, G.; Mansurov, Z.; Mikhalovsky, S.; Berillo, D. Activated Carbon/Pectin Composite Enterosorbent for Human Protection from Intoxication with Xenobiotics Pb(II) and Sodium Diclofenac. Molecules 2022, 27, 2296. https://doi.org/10.3390/molecules27072296<br>4. Mambetova, M.; Yergaziyeva, G.; Dossumov, K.; Askaruly, K.; Azat, S.;</td></tr>
</table>

Bexeitova, K.; Anissova, M.; Baizhomartov, B. Comparative Study of Physicochemical Characteristics and Catalytic Activity of Copper Oxide over Synthetic Silicon Oxide and Silicon Oxide from Rice Husk in Non-Oxidative Dehydrogenation of Ethanol. *ChemEngineering* **2022**, *6*, 74. https://doi.org/10.3390/chemengineering6050074

5. Kydyr Askaruly, Mukhtar Yeleuov, Azamat Taurbekov, Bibigul Sarsembayeva, Aidos Tolynbekov, Nurzhamal Zhylybayeva, **Seitkhan Azat,** Alisher Abdisattar, Chingis Daulbayev, A FACILE SYNTHESIS OF GRAPHITE-COATED AMORPHOUS SiO2 FROM BIOSOURCES AS ANODE MATERIAL FOR LIBS, Materials Today Communications,2023,105136,ISSN 2352-4928,https://doi.org/10.1016/j.mtcomm.2022.105136.

6. Mansurov, Z.A., Velasco, L.F., Lodewyckx, P. *et al.* Modified Carbon Sorbents Based on Walnut Shell for Sorption of Toxic Gases. *J Eng Phys Thermophy* **95**, 1383–1392 (2022). https://doi.org/10.1007/s10891-022-02607-7

7. Sailaukhanuly, Y., Popova, A., Mansur, T., Bexeitova, K., Azat, S., Toshtay, K., Tovassarov, A. and Tasmagambetova, A. 2022. Preliminary Study and Assessment of Drinking Water from Almaty, Kazakhstan. Eurasian Chemico-Technological Journal. 24, 4 (Dec. 2022), 341–350. DOI:https://doi.org/10.18321/ectj1478.

8. Kydyr Askaruly, Alina V. Korobeinyk, Seitkhan Azat, Mukhtar Yeleuov, Azamat Taurbekov, Kainaubek Toshtay, Zhandos Tauanov, Xintai Su,

The electrochemical behavior of silica and activated carbon materials derived from the rice husk waste for li-ion cells,Diamond and Related Materials, Volume 133,2023,109759, ISSN 0925-9635, https://doi.org/10.1016/j.diamond.2023.109759.

9. Abdiyev, K.; Azat, S.; Kuldeyev, E.; Ybyraiymkul, D.; Kabdrakhmanova, S.; Berndtsson, R.; Khalkhabai, B.; Kabdrakhmanova, A.; Sultakhan, S. Review of Slow Sand Filtration for Raw Water Treatment with Potential Application in Less-Developed Countries. *Water* **2023**, *15*, 2007. https://doi.org/10.3390/w15112007

10. Toshtay, K., Auyezov, A., Aubakirov, Y. *et al.* Palladium–Nickel Supported and Palladated Activated Diatomite as an Efficient Catalyst for Poly-α-olefins Hydrogenation. *Catal Surv Asia* (2023). https://doi.org/10.1007/s10563-023-09394-y

11. Suleimenova, M.; Zharylkan, S.; Mekenova, M.; Mutushev, A.; Azat, S.; Tolepova, A.; Baimenov, A.; Satayeva, A.; Tauanov, Z. Fusion-Assisted Hydrothermal Synthesis of Technogenic-Waste-Derived Zeolites and Nanocomposites: Synthesis, Characterization, and Mercury (II) Adsorption. *Int. J. Mol. Sci.* **2023**, *24*, 11317. https://doi.org/10.3390/ijms241411317

12. Kuldeyev, E.; Seitzhanova, M.; Tanirbergenova, S.; Tazhu, K.; Doszhanov, E.; Mansurov, Z.; Azat, S.; Nurlybaev, R.; Berndtsson, R. Modifying Natural Zeolites to Improve Heavy Metal Adsorption. *Water* **2023**, *15*, 2215. https://doi.org/10.3390/w15122215

13. N.V. Sidorova, M.A. Imanbayev, B. Khalkhabay, A.A. Zharmenov, E.I. Kuldeyev, S. Azat, R. Berndtsson, New spatial-globular structure polymer for pre-treatment in reverse osmosis membrane filtration,Journal of Water Process Engineering,Volume 58,2024, https://doi.org/10.1016/j.jwpe.2024.104861.

14. Seitzhanova, M.; Azat, S.; Yeleuov, M.; Taurbekov, A.; Mansurov, Z.; Doszhanov, E.; Berndtsson, R. Production of Graphene Membranes from Rice Husk Biomass Waste for Improved Desalination. *Nanomaterials* **2024**, *14*, 224. https://doi.org/10.3390/nano14020224

15. Yunbing He, Xuexue Pan, Zhiqiang Zhang, Qingping Long, Qian Liu, Seitkhan Azat, Qamar Abbas, Guanyu Qiu, Zhazira Supiyeva, Xinman Chen,Exploring unique properties of polypyrrole reinforced molybdenum disulfide electrodes for aqueous aluminum ion capacitors,Journal of Energy Storage,Volume 114, Part B,2025,https://doi.org/10.1016/j.est.2025.115902.

16. Mirlan Jussambayev, Kalizhan Shakenov, Shynggyskhan Sultakhan, Ulan Zhantikeyev, Kydyr Askaruly, Kainaubek Toshtay, Seitkhan Azat,MXenes for sustainable energy: A comprehensive review on conservation and storage applications,CarbonTrends,Volume19,2025, https://doi.org/10.1016/j.cartre.2025.100471.

| Activities in specialized bodies over the past 5 years | Organization | Role | Period |
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Membership:

- **Member of the National Scientific Council (NSC)** in the field of *Natural Sciences Research*, appointed by the Order of the Minister of Science and Higher Education of the Republic of Kazakhstan No. 224 dated May 13, 2024.
- **Member of the National Scientific Council (NSC)** in the field of *Rational Use of Water Resources, Flora and Fauna, and Ecology*, appointed by the Order of the Minister of Science and Higher Education of the Republic of Kazakhstan No. 258 dated June 5, 2023 (2023–2024).
- **Editorial Board Member**, *Nanotechnology and Nanomaterials Research* (ISSN 885X). https://www.scholarsliterature.com/journals/nanotechnology-and-nanomaterials-research/editorial-board
- **Editorial Board Member**, *Vestnik Satbayev University* (ISSN 2709-4766 Online, ISSN 2709-4758 Print), 2020–2021.
- **Member of the Academic Council**, A. Baitursynuly Education Academy (No. 022).
- **Member of the Dissertation Council** for the specialties:
*6D070900 – Metallurgy*,
*6D071000 – Materials Science and Technology of New Materials*,
*6D074000 – Nanomaterials and Nanotechnology*
(Order No. 65- dated March 4, 2022).
- **Member of the Competition Commission**, Innovation Ideas and Projects Contest *"TECH STARTUP 2022"*, Satbayev University.
- **Scientific Expert**, National Center for State Scientific and Technical Expertise (NCSTE), conducting monitoring and evaluation of grant-funded research projects (2022).
- **Member of the Scientific and Technical Council (STC)**, Satbayev University.
- **Reviewer** for international scientific journals, including:
*Catalysis (MDPI)*, *Silicon (Springer)*, *Engineered Science*, *Sensors (MDPI)*, *Journal of Engineering Research*, *Eurasian Chemico-Technological Journal*, *Vestnik of Kazakhstan-British Technical University*, *Polymers for Advanced Technologies*, *Sustainability (MDPI)*, *Chemical Engineering Science*, *Bulletin of Karaganda University (Chemistry Series)*, *Bulletin of al-Farabi Kazakh National University (Chemistry Series)*.
- **Chair of the State Attestation Commission (SAC)** for the educational program *6B11201 – Life Safety and Environmental Protection*, Al-Farabi Kazakh National University (2023–2024).
- **Jury Member**, National student competition *"Daryn"*.
- **Member of the Working Group** for training university staff in scientific writing for Q1–Q2 journals, Satbayev University.
- **Chair of the Jury**, Republican Olympiad in General Education Subjects (Chemistry), Almaty, 2023.
- **Editorial Board Member**, *Eurasian Chemico-Technological Journal* (Scopus indexed), 2023–2024.
- **Chair of the Jury**, Young Scientists Forum *"Shoqan Ecology"*, 2023–2024.
- **Member of the Working Group**, "Earth Sciences, Space and Communications", National Academy of Sciences of the Republic of Kazakhstan under the President (2023).

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| | • **Author of the National Report on Science** (section on Advanced Materials), National Academy of Sciences of the Republic of Kazakhstan under the President (2023). |

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|---|---|---|---|
| full name | ***Ybyraiymkul Darkhan Torekhanuly*** | | |
| position | *Assistant of the Department of Materials Science, Nanotechnology and Engineering Physics* | | |
| Academic career | Master's degree (Materials science and technology of new materials) | K.I.Satpayev Kazakh National Technical University | *2008-2010* |
| | Bachelor's degree (Materials science and technology of new materials ) | K.I.Satpayev Kazakh National Technical University | *2004-2008* |
| full name | Engineer of the highest qualification level | Kazakh National Technical University named after K.I.Satpayev, Department of "Metallology and Heat Treatment of Metals" | *10.2010-09.2011* |
| | Junior Researcher | Kazakh National Technical University named after K.I.Satpayev, On the topic No.747MON GF12.18 "Creation of nanotructured organic, polymer solar cells for the conversion of solar energy into electrical energy" | *2011-2014* |
| | Junior Researcher | Kazakh National Technical University named after K.I.Satpayev, On the topic No. 757.MON. GF.15RIPR.25 "Development of new theoretical methods for calculating phase transformations in metallic materials and scientifically based control systems for their phase composition, structure and properties" | *2016-2017* |
| | Tutor | NAO "KazNITU named after K.I.Satpayev", Institute of Industrial Engineering, Department "SMiTMP" | *14.08.2017-31.05.2018* |
| | Engineer | NAO "KazNITU named after K.I.Satpayev", Institute of Industrial Engineering (Institute of Metallurgy and Industrial Engineering), Department of Engineering Physics | *27.08.2018-31.12.2021* |

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| | Assistant | NAO "KazNITU named after K.I.Satpayev", Institute Institute of Metallurgy and Industrial Engineering (Mining and Metallurgical Institute named after O.A.Baikonurov), Department of "Materials Science, Nanotechnology and Engineering Physics" | *From 01.09.2021 to the present* |
| Research and development projects over the past 5 years | Researcher on the topic No. 100-GC-16 "Creation of pilot production of innovative aluminum alloys from domestic raw materials and finished products from them with a nanostructured protective ceramic coating", grant for commercialization of the results of scientific and (or) scientific and technical activities dated December 23, 2016 (2017-2019) JSC "Science Foundation", business portner of Alakol Plant LLP. Grant for 300,000,000 tenge. | | |
| Industry cooperation over the past 5 years | Commercialization Project No. 100-GC-16 - "Creation of pilot production of innovative aluminum alloys from domestic raw materials and finished products from them with nanostructured protective ceramic coating", 2017-2019. | | |
| Patents and property rights | Heat-resistant aluminum alloy and a method for obtaining deformed semi-finished products from it | Application for a patent of the Republic of Kazakhstan. No. 2020/042.2020 | |
| Important publications over the last 5 years | - | | |
| Activities in specialized bodies over the past 5 years | - | | |

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|---|---|---|---|
| full name | ***Kemelbekova Ainagul Yerzhanovna*** | | |
| position | *assistant* | | |
| Academic career | *Initial academic appointment*<br><br>*Bachelor of Engineering and Technology*<br><br>*Master of Technical Sciences*<br><br>*PhD student* | *Institution*<br><br>*Kazakh National University named after. Al-Farabi*<br><br>*Kazakh National University named after. Al-Farabi*<br><br>*Satbayev university* | *year*<br><br>*2010 – 2014*<br><br>*2014-2016*<br><br>*2018-2021* |
| Employment | *Teacher* | *JSC "Academy of Civil Aviation"* | *2016 – 2019* |
| | *junior researcher* | *LLP "Physico-Technical Institute"* | *2019-2021* |
| | *assistant* | *Satbayev university* | *2019 – Until now* |
| Research and development projects over the past 5 years | *"Development of the scientific foundations for the creation of new nanomaterials and methods for their analysis to obtain films with desired useful properties of the RC" (PCF BR05236404) for the period 2018-2020.*<br><br>*"Optimization of the structure of thin films for the manufacture of solar cells on a flexible substrate" (GF AP09260940) for the period 2021-2023.* | | |
| Industry cooperation over the past 5 years | - | | |
| Patents and property rights | - | | |
| Important publications over the last 5 years | 1.Synthesis of highly dispersed forms of zinc oxide doped with rare-earth elements (review) Complex Use of Mineral Raw Materials. No. 4.2019, Almaty, pp. 12-18, ISSN 2224-5243, *https://kims-imio.kz/wp-content/uploads/2019/04/%E2%84%964-2019-12-18.pdf*<br><br>2 Review of modern methods for obtaining thin ZnO:Eu films, VESTNIK KazNITU No. 6.2019, Almaty, pp. 824-829, ISSN 1680-9211<br>3 Aerosol synthesis of finely dispersed YAG:Ce3+ phosphor with strong photoluminescence, Physics of the Solid State, October 2019, Volume 61, Issue 10, pp 1840–1845.<br>4 Aerosol synthesis of highly dispersed Y3AL5O12:Ce3+ phosphor with intense photoluminescence, Physics of the Solid State, 2019, vol. 61, no. 10, pp. 1184-1889.<br>5Preparation of zinc oxide films doped with europium oxide by the sol-gel method, RDRZ-19, V-All-Russian conference with international participation, "V-Russian Day of Rare Earths", February 13-14, 2019, p.78. | | |
| Activities in specialized bodies over the past 5 years | - | | |

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|---|---|---|---|
| full name | ***Yerbol Talshyn*** | | |
| position | *engineer* | | |
| Academic career | *Initial academic appointment*<br><br>*Bachelor of Engineering and Technology*<br><br>*Master of Technical Sciences* | *Institution*<br><br>*Satbayev university*<br><br>*Satbayev university* | *year*<br><br>*2015 – 2019*<br><br>*2019-2021* |
| Employment | *Teacher* | *Satbayev university* | *2021 – Until now* |
| Research and development projects over the past 5 years | - | | |
| Industry cooperation over the past 5 years | - | | |
| Patents and property rights | - | | |
| Important publications over the last 5 years | - | | |
| Activities in specialized bodies over the past 5 years | - | | |

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|---|---|---|---|
| full name | ***Imash Aigerim*** | | |
| position | *engineer* | | |
| Academic career | *Initial academic appointment*<br><br>*Bachelor of Engineering and Technology*<br><br>*Master of Natural Sciences*<br><br>*PhD student* | *Institution*<br><br>*Satbayev university*<br><br>*Satbayev university*<br><br>*Al-Farabi Kazakh National University* | *year*<br><br>*2015 – 2019*<br><br>*2019-2021*<br><br>*2022-2025* |
| Employment | *Teacher* | *Satbayev university* | *2025 – until now* |
| | *Senior Lecture* | *Kazakh-British Technical University* | *2026 – until now* |
| | *Researcher* | *Institute of Combustion Problems* | *2021 – until now* |
| Research and development projects over the past 5 years | *1. Project OR11465430, "Development of New Composite Structural Materials for the Advancement of the Innovative Industry of the Republic of Kazakhstan" (2021–2022).*<br>*2. Project AP13068375, "Production of Cellulose-Based Materials from Plant Waste and Mineral Additives" (2022–2024).*<br>*3. Project AP19576899, "Development of Magnetite- and 2D Nanostructure-Based Composite Materials and Their Application for* | | |

<table>
<tr><td></td><td colspan="2">Water Purification and Desalination" (2023–2025).<br>4. Project AP09259842, "Production of Carbon Fibers for Various Functional Applications via Processing of Coal Tar and Petroleum Bitumen" (2021–2023).<br>5. Project AP19679690, "Development of Composite Materials Based on Carbon Nanotubes and Magnetite Nanoparticles for Application as Microwave Radiation Absorbing Materials" (2023–2025).<br>6. Project AP19679885, "Polyaniline-Based Nanocomposites Reinforced with Metal Oxide Nanoparticles and Carbon Nanostructures for Application as Chemiresistive Detectors" (2023–2025).</td></tr>
<tr><td>Industry cooperation over the past 5 years</td><td colspan="2">-</td></tr>
<tr><td rowspan="6">Patents and property rights</td><td>Method for Producing Cellulose Fibers from Plant Raw Materials.</td><td>Published 20.09.2024; Bull. No. 38.</td></tr>
<tr><td>Method for Producing Carbon Nanofibers</td><td>Published 18.02.2022; Bull. No. 7.</td></tr>
<tr><td>Method for Producing Gas-Sensitive Composite Fibers</td><td>Published 11.11.2022; Bull. No. 8.</td></tr>
<tr><td>Method for Producing a Composite Sorbent Based on MXene/$Fe_3O_4$</td><td>Published 17.07.2025; Bull. No. 27.</td></tr>
<tr><td>Method for Producing Gas-Sensitive Composite Fibers</td><td>Published 22.08.2025; Bull. No. 34.</td></tr>
<tr><td>Method for producing modified activated carbon</td><td>Published 2022; Bulletin No. 44.</td></tr>
<tr><td>Important publications over the last 5 years</td><td colspan="2"><ol>
<li>Tasmurzayev N., Amangeldy B., Smagulova G., Baigarayeva Z., Imash A. A Low-Cost IoT Sensor and Preliminary Machine-Learning Feasibility Study for Monitoring In-Cabin Air Quality: A Pilot Case from Almaty //Sensors. – 2025. – T. 25. – №. 14. – C. 4521. (WoS SCIE Q2; Scopus CiteScore 8.2 (2024), percentile 88%)</li>
<li>Amangeldy B., Tasmurzayev N., Imash A., Kaidar B., Abdissattar A., Smagulova G. Temporal Analysis of Indoor Air Quality Parameters in Metro Systems: A Focus on Diurnal Changes // Advances in Transdisciplinary Engineering. – IOS Press, 2025. – P. 124 - 134. (Scopus CiteScore 0.3 (2024), percentile 11 %)</li>
<li>Imash A., Smagulova G., Kaidar B., Keneshbekova A., Kazhdanbekov R., Velasco L.F., Mansurov Z. Chemoresistive Gas Sensors Based on Electrospun 1D Nanostructures: Synergizing Morphology and Performance Optimization. Sensors. 2024; 24(21):6797. https://doi.org/10.3390/s24216797 (WoS SCIE Q2; Scopus CiteScore 8.2 (2024), percentile 88%)</li>
<li>Keneshbekova A., Smagulova G., Kaidar B., Imash A., Ilyanov A., Kazhdanbekov R., Yensep E., Lesbayev A. MXene/Carbon Nanocomposites for Water Treatment. Membranes. - 2024. - Vol. 14. - No.9:184. https://doi.org/10.3390/membranes14090184 (WoS SCIE Q2; Scopus CiteScore 7.9 (2024), percentile 75%)</li>
<li>Smagulova G., Imash A., Baltabay A., Keneshbekova A., Abdisattar A., Kazhdanbekov R., Lesbayev A., Mansurov Z. Mechanistic Evaluation of Pb(II) Adsorption on Magnetic Activated Carbon/$Fe_3O_4$ Composites: Influence of Hydrothermal and Ultrasonic Synthesis Routes//C-Journal of Carbon Research. – 2025. – Vol. 11, No. 4. – P. 83. https://doi.org/10.3390/c11040083 (WoS Q2, Scopus CiteScore 3.4 (2024), percentile 55 %)</li>
<li>Taurbekov A., Kaidar B., Baltabay A., Imash A., Ko W-B., Ko J-W., Atamanov M., Mansurov Z., Smagulova G. Valorization of Grass Clipping Waste: A Sustainable Approach to Cellulose Extraction and Paper Manufacturing. Applied Sciences. - 2024. - Vol. 14. - No.15:6680. https://doi.org/10.3390/app14156680 (WoS SCIE Q1; Scopus CiteScore 5.5 (2024), percentile 79%)</li>
<li>Kaidar B., Imash A., Smagulova G., Keneshbekova A., Kazhdanbekov R., Yensep E., Akalim D., Lesbayev A. Magnetite-Incorporated 1D Carbon Nanostructure Hybrids for Electromagnetic</li>
</ol></td></tr>
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| | *Interference Shielding. Nanomaterials. - 2024. - Vol. 14. - No.15:1291. https://doi.org/10.3390/nano14151291 (WoS SCIE Q2; Scopus CiteScore 9.2 (2024), percentile 85%)*<br>8. *Kaidar B., Smagulova G., **Imash A.**, Keneshbekova A., Ilyanov A., Mansurov Z. Pitch/Metal Oxide Composite Fibers via Electrospinning for Environmental Applications // Technologies. – 2023. – Vol. 11. – No. 6. – P. 156. https://doi.org/10.3390/technologies11060156 (Scopus CiteScore 6.7 (2023), percentile 86%)*<br>9. *Smagulova G., **Imash A.**, Baltabay A., Kaidar B., Mansurov Z. Rice-Husk-Based Materials for Biotechnological and Medical Applications // C. – 2022. – Vol. 8. – No. 4. – P. 55. https://doi.org/10.3390/c8040055 (Scopus CiteScore 3.4 (2024), percentile 55%)*<br>10. *Mansurov Z., Smagulova G., Kaidar B., **Imash A.**, Lesbayev A. PAN – Composite Electrospun-Fibers Decorated with Magnetite Nanoparticles // Magnetochemistry. – 2022. – Vol. 8. – No. 11. – P. 160. https://doi.org/10.3390/magnetochemistry8110160 (WoS SCIE Q2; Scopus CiteScore 4.6 (2024), percentile 58%)*<br>11. *Kaidar B., Smagulova G., **Imash A.**, Mansurov Z. Gas Sensitive Materials Based on Polyacrylonitrile Fibers and Nickel Oxide Nanoparticles // Journal of Composites Science. – 2022. – Vol. 6. – No. 11. – P. 326. https://doi.org/10.3390/jcs6110326 (Scopus CiteScore 5.8 (2024), percentile 79%)*<br>12. *Mansurov Z., Smagulova G., **Imash A.**, Taurbekov A., Elouadi B., Kaidar B. Carbon/NiO Compositional Fibers // Eurasian Chemico-Technological Journal. – 2022. – Vol. 24. – No. 2. https://doi.org/10.18321/ectj1319 (Scopus CiteScore 1.7 (2024), percentile 33%)* |

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| full name | ***Kerimkulova Almagul Ryskulovna*** | | |
| position | *Associate Professor* | | |
| Academic career | *Education (Engineer-Technologist, full higher education – 5 years)*<br><br>*Postgraduate studies (Aspirantura), Almaty, Kazakhstan*<br><br>*Doctoral degree*<br><br>*Academic title* | *Al-Farabi Kazakh National University*<br><br>*Al-Farabi Kazakh National University*<br><br>*Candidate of Chemical*<br><br>*Associate Professor* | 2001 – 2006<br><br>2006 – 2009<br><br>2010<br><br>2023 |
| Employment | Senior Lecturer, Department of Chemical Physics and Materials Science | Al-Farabi Kazakh National University | 01.09.2011 – 03.09.2013 |
| | Acting Associate Professor, Department of Chemical Physics and Materials Science | Al-Farabi Kazakh National University | 04.09.2013 – 31.08.2019 |
| | Deputy Head of Department for educational, methodological and educational work | Al-Farabi Kazakh National University | 01.09.2012 – 28.02.2015 |

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|---|---|---|---|
| | Head of Laboratory of Carbon Nanomaterials and Nanobiotechnology | Institute of Combustion Problems | 18.05.2016 – 18.02.2020 |
| | Senior Lecturer, Department of Chemical Physics and Materials Science | Al-Farabi Kazakh National University | 02.09.2019 – 13.02.2023 |
| | Associate Professor, Department of Chemical Physics and Materials Science | Al-Farabi Kazakh National University | 14.02.2023 – 28.08.2025 |
| | Deputy Head of Department for educational, methodological and educational work | Al-Farabi Kazakh National University | 11.04.2023 – 30.05.2025 |
| | Associate Professor, Department of Materials Science, Nanotechnology and Engineering Physics | Satbayev University | 02.09.2025 – *Until now* |
| Research and development projects over the past 5 years | – AR22786556 – Development of porous nanosorbents from biowaste for efficient sorption of toxic gases. Project funded by the Ministry of Science and Higher Education of the Republic of Kazakhstan (program for young scientists). ***Period:*** *2024–2026.* ***Position:*** *Project Leader.*<br>– Valorization of biomass waste into high efficient materials for CBRN protection. NATO Science for Peace and Security Programme, Project G5636. ***Period:*** *2019–2021.* ***Position:*** *Co-leader of the project.* | | |
| Industry cooperation over the past 5 years | - | | |
| Patents and property rights | **Kerimkulova, A.R.;** Mansurov, Z.A.; Sabitov, A.N.; Doszhanov, Y.O.; Ermoldanov, Y.Zh.; Asanbek, N.M. Method for obtaining a three-component modified carbon material for sorption of toxic gases. Utility model patent №10818, Republic of Kazakhstan, 04.07.2025. | | |
| Important publications over the last 5 years | 1. Mansurov, Z.A.; Lodewyckx, P.; Velasco, L.F.; Azat, S.; **Kerimkulova, A.R.** Modified Sorbents Based on Walnut Shell for Sorption of Toxic Gases. *Materials Today: Proceedings*. 2022, 49, 2521–2526. https://doi.org/10.1016/j.matpr.2020.12.948<br>2. Salikova, N.S.; **Kerimkulova, A.R.**; Rodrigo-Ilarri, J.; Alimova, K.K.; Rodrigo-Clavero, M.-E.; Kapbassova, G.A. Sorption-Based Removal Techniques for Microplastic Contamination of Tap Water. *Water*. 2024, 16(10), 1363. https://doi.org/10.3390/w16101363<br>3. **Kerimkulova, A.**, Kerimkulova, M.; Ayazbayev, R.; Nyssanbayeva, G.; Ermoldanov, E.; Zhanay, Z.; Mansurov, Z. Assessment of the Possibility of Using Carbon Sorbents from Biowaste for Soil Purification from Heavy Metal Ions. *Caspian Journal of Environmental Sciences*. 2024, 22(4), 999–1005. https://doi.org/10.22124/CJES.2024.8117<br>Shepilov D.; Turganbay S.; Jumagaziyeva A.; Bukeyeva T.; Askarova D.; Bolatova D.; Doszhanov Y.; Zhumazhanov A.; **Kerimkulova A.;** Saurykova K.; Sabitov A. // The Iodine-Dextrin-Lithium Complex: Morphology, Antibacterial Activity, and Cytotoxicity. Molecules – 2025, 30, 4822. https://doi.org/10.3390/molecules30244822<br>4. Akhmetzhanova, D.; Sabitov, A.; Doszhanov, Y.; Atamanov, M.; Saurykova, K.; Zhumazhanov, A.; Atamanova, T.; **Kerimkulova, A.;** Velasco, L.F.; Zhumagalieva, A.; et al. Zeolites and Activated Carbons in Hydroponics: A Systematic Review of Mechanisms, | | |

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| | Performance Metrics, Techno-Economic Analysis and Life-Cycle Assessment. Sustainability 2025, 17, 10977. https://doi.org/ 10.3390/su172410977<br>5. Smolyar, V.; Adenova, D.; Rakhimov, T.; Ayazbayev, R.; Nyssanbayeva, G.; **Kerimkulova, A.** Zoning of the Territory of Southern Kazakhstan Based on the Conditions of Groundwater Availability for Watering Pasture Lands. Hydrology 2025, 12, 227. https://doi.org/ 10.3390/hydrology12090227<br>6. Sabitov, A.; Turganbay, S.; **Kerimkulova, A.;** Doszhanov, Y.; Saurykova, K.; Atamanov, M.; Zhumazhanov, A.; Bolatova, D. 1-Carboxy-2-phenylethan-1-aminium Iodide 2-Azaniumyl-3 phenylpropanoate Crystals: Properties and Its Biochar-Based Application for Iodine Enrichment of Parsley. Appl. Sci. 2025, 15, 10752. https://doi.org/10.3390/ app151910752<br>7. Asanbek, N.; **Kerimkulova, A.**; Velasco, L.F.; Sabitov, A.; Atamanov, M.; Ermoldanov, Y.; Doszhanov, Y.; Ismailova, G. Physicochemical Characteristics and Prospects of Carbon Nanomaterials and Composites for Gas Sorption. *Applied Sciences*. 2026, 16(3), 1587. https://doi.org/10.3390/app16031587 |
| Activities in specialized bodies over the past 5 years | - |

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|---|---|---|---|
| full name | ***Bukhvalov Danil*** | | |
| position | *Senior Lecteur* | | |
| Academic career | *Initial academic appointment*<br><br>*Bachelor/Master of Physics*<br><br><br><br><br><br><br><br>*PhD student* | *Institution*<br><br>*Ural State Technical University (now Ural Federal University), Ekaterinburg, Russia*<br><br><br><br><br><br>*Institute of Metal Physics, Ural Branch of RAS, Ekaterinburg, Russia* | *year*<br><br>*1993-1999*<br><br><br><br><br><br><br><br>*1999-2004* |
| Employment | *Senior Lecteur* | *Satbayev university* | *2026-until now* |
| | *Professor* | *Nanjing Forestry University, Nanjing, China* | *2018--until now* |
| | *Associate Professor* | *Hanyang University, Seoul, South Korea* | *2014-2018* |
| | *Assistant Professor* | *KIAS, Seoul, South Koreal* | *2011-2014* |
| | *Postdoctoral Fellow* | *NIMS, Tsukuba, Japan* | *2010-2011* |
| | *Postdoctoral Fellow* | *IMM, Radboud University, the Netherlands* | *2006-2009* |
| | *Researcher* | *Institute of Metal Physics, Ural Branch of RAS, Ekaterinburg, Russia* | *2004-2006* |
| Research and development projects over the past 5 years | Developing a technology to reduce energy costs and waste without compromising efficiency in the recycling of lithium-ion batteries, BR28712683-OT-25, Kazakhstan, Principal Investigator (2025-2027)<br><br>Development of technologies for the synthesis of nanostructured materials for the creation of effective photocatalytic electrodes, photo- and gas-sensitive sensors, BR21881954-OT-25, Kazakhstan, Principal Investigator (2023-2026)<br><br>Jiangsu Province Innovative and Entrepreneurial Talents Project, China Project leader (2012-2023) | | |

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| Industry cooperation over the past 5 years | *Visiting Scientist at Institute of Quantum Material Sciences, founded by Magnitogorsk Metallurgical Factory* |
| Patents and property rights | *Method for the fabrication of the luminescent carbon quantum dots ( Russian Patent Agency Number 2789995, published 14.02.2023).* |
| Important publications over the last 5 years | K.K. Sharma, D.Sharma, **D.W. Boukhvalov**, U. Khandelwal, P. Nukala, N. Bhat, R. Karuppannan, Synthesis of nanostructured cubic phase $SnO_2$ thin film and its trace-level sensing of CO gas. (2026) **Nature Communications** 17:82. IF = 15.7 https://doi.org/10.1038/s41467-025-66760-2<br>**D.W. Boukhvalov**, G. D'Olimpio, T. Dadiani, J. Sharma, A.A. A. Elameen, S. Zenone, M. Rosmus, B. Gürbulak, E. Çepni, E. Llobet, E. Magnano, F. Bondino, S. Duman, A. Politano, Self-Assembled Gallium Sulfide (GaS) Heterostructures Enabling Efficient Water Splitting and Ultrasensitive Chemical Sensing. (2025) **Advanced Functional Materials** 2507388. IF = 18.3. https://doi.org/10.1002/adfm.202507388<br>Y. Zhang, Q. Zhao, **D. Bukhvalov**, W. Xiao, X. Yang, Oxygen-Vacancy-Induced Formation of Pt-Based Intermetallics on MXene with Strong Metal-Support Interactions for Efficient Oxygen Reduction Reaction. (2024) **Advanced Materials** 2400198. IF = 29.4 https://doi.org/10.1002/adma.202400198<br>W. Xiao, D. Yan, Q. Zhao, **D. Bukhvalov**, X. Yang, Regulating electrocatalytic properties of oxygen reduction reaction via strong coupling effects between Co-NC sites and intermetallic $Pt_3Co$. (2024) **Applied Catalysis B: Environment and Energy** 346:123740. IF = 22.1 https://doi.org/10.1016/j.apcatb.2024.123740<br>**D.W. Boukhvalov,** V.Yu. Osipov, D. Murzalinov, A. Serikkanov, H. Bi, A comprehensive model of carbon nanodots with 0.21 nm lattice fringes patterns. (2024) **Carbon** 225:119101. IF = 10.9 https://doi.org/10.1016/j.carbon.2024.119101 Highly Cited Paper (WoS)<br>M. Zhang, T. Zhou, **D. Bukhvalov**, F. Han, C. Wang, X. Yang, Metal-support interaction promoted multifunctional electrocatalysis on PtCo/NC with ultralow Pt loading for oxygen reduction reaction and zinc-air battery. (2023) **Applied Catalysis B: Environmental** 337:122976. IF = 22.1 https://doi.org/10.1016/j.apcatb.2023.122976<br>**D.W. Boukhvalov** On Atomic Structure of Two Dimensional Materials with Janus Structure (2022) **Physical Chemistry Chemical Physics** 24:9836-9841. IF = 3.68. https://doi.org/10.1039/D1CP05311F |
| Activities in specialized bodies over the past 5 years | *No* |

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| full name | **Paltusheva Zh. U.** | | |
| position | Senior Lecturer, PhD | | |
| Academic career | Bachelor's Degree in **Technical Physics**<br><br>Master's Degree in **Physics**<br><br>PhD in **Materials Science and Technology of New Materials** | Satbayev university<br><br>Satbayev university<br><br>Satbayev university | 2011-2015<br><br>2015-2017<br><br>2020-2024 |
| Employment | Senior Lecturer, PhD | Satbayev university | 2025- – Until now |
| Research and development projects over the past 5 years | "Synthesis and investigation of nanostructured semiconductor materials for sensor applications"<br>«Development of homogeneous and heterogeneous semiconductor systems for application in high-performance electrochemical and photocatalytic electrodes» | | |
| - Industry cooperation over the past 5 years | | | |
| - Patents and property rights | Abdullin Kh.A., Gritsenko L.V., Kedruk Y.Y., Paltusheva Zh.U.<br>"Method for obtaining photocatalytically active zinc oxide powders"<br>Patent No. 35707, issued 10.06.2022<br>Application No. 2021/0249 | | |
| Important publications over the last 5 years | *2* articles in an international peer-reviewed journal indexed in Scopus and Web of Science:<br>1.**Paltusheva Zh.U**., Ashikbayeva Zh., Tosi D., Gritsenko L.V. Highly Sensitive Zinc Oxide Fiber-Optic Biosensor foe the Detection of CD44 protein// Biosensors. – 2022. - V.12. - Issue11. - P.1015. (Q1, процентиль 89%)<br>2.Lesya V. Gritsenko, Zhaniya U. Paltusheva, Dinara T. Tastaibek, Khabibulla A. Abdullin, Zhanar K. Kalkozova, Maratbek T. Gabdullin, Juqin Zeng. Highly Sensitive Zinc Oxide Nanorods for Non-Enzyme Electrochemical Detection of Ascorbic and Uric Acids Biosensors. – 2026. - V.16. – Issue3. - P.143. (Q1, процентиль 89%)<br><br>*5* articles in journals recommended by the Committee for Quality Assurance in Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan, indexed in Scopus/Web of Science:<br><br>3.**Paltusheva Zh.U.**, Alpysbaiuly N., Kedruk Y.Y., Zhaidary A.D., Aitzhanov M.B., Gritsenko L.V., Abdullin Kh.A. Photocatalytic activity of zinc oxide – graphene oxide composites// Bulletin of the university of Karaganda-physics. - 2022. - V.2. -P.102-110. ***Web of science***.<br>*4*. Gritsenko L.V., Kedruk Y.Y, **Paltusheva Zh.U.**, Syritski V. Structural properties of ZnO nanopowders synthesized by thermal decomposition// Physical sciences and technology. - 2023. - V. 10. - P.3-4. ***Scopus.*** | | |

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| | 5. **Paltusheva Zh.U.**, Gritsenko L.V., Kedruk Y.Y., Abdullin Kh. A., Aitzhanov M.B., Kalkozova Zh.K. Электрохимический сенсор аскорбиновой кислоты на основе наноструктур оксида цинка// Recent Contributions to Physics - 2023. - V.86.- №3. - P.49-56. ***Web of science***.<br>6. **Paltusheva Zh.U.**, Kedruk Y.Y., Gritsenko L.V., Tulegenova, Syritski V., Abdullin Kh.A. The influence of synthesis parameters and thermal treatment on the optical and structural properties of zinc oxide- based nanomaterials// Physical Sciences and Technology. – 2024. – V.11, №1-2. – P. 49-57. ***Scopus.***<br>7. L.V. Gritsenko, Zh.K. Kalkozova, Y.Y. Kedruk, **Zh.U. Paltusheva**, M.N. Mussakhanov, Kh.A. Abdullin $ZnCo_2O_4$ nanostructure-based electrochemical sensor for highly sensitive glucose detection Physical Sciences and Technology, 2025, Vol. 12, №(3-4), P.50-59. Scopus Physics and Astronomy – 16%<br>*14*Conference Proceedings:<br>8. Кедрук Е.Ю., Айтжанов М.Б., **Палтушева Ж.У.**, Гриценко Л.В., Абдуллин Х.А. Влияние термической обработки на фотокаталитические свойства наностержней оксида цинка //Труды Сатпаевских чтений. – Алматы, 2021. - С. 1094–1097.<br>9. **Палтушева Ж.У.**, Гриценко Л.В. Применение наноструктурированного оксида цинка в биосенсорных устройствах// Труды Сатпаевских чтений. – Алматы, 2021. - С. 1101–1105.<br>10. Кедрук Е.Ю., **Палтушева Ж.У.**, Гриценко Л.В., Абдуллин Х.А. Разложение органических соединений под действием фотокаталитически активного ZnO//Аморфные и микрокристаллические полупроводники: сборник тезисов Международной конференции. – Санкт-Петербург, 2021 г. - С. 130–131.<br>11. Гриценко Л. В., **Палтушева Ж.У.**, Кедрук Е.Ю., Абдуллин Х.А. Исследование фотокаталитической активности наноструктурированного оксида цинка// ФизикА.СПб: тезисы докладов международной конференции. – Санкт-Петербург, 2021 г. - С. 120–121.<br>12. **Палтушева Ж.У.**, Кедрук Е.Ю., Жайдары А.Д., Гриценко Л. В. Структурные свойства композитов ZnO-GO// Международная конференция студентов и молодых ученых «Фараби әлемі», Алматы. – 2023. – С. 88.<br>13. Толубаева Д.Б., **Палтушева Ж.У.,** Жайдары А., Гриценко Л.В. Электрохимические свойства наностержней оксида цинка// Международная конференция студентов и молодых ученых «Фараби әлемі», Алматы. – 2023. – С. 96.<br>14. **Палтушева Ж.У.**, Гриценко Л. В., V. Syritski. Волоконно-оптический биосенсор на основе оксида цинка// Сборник докладов «65-й Всероссийской научной конференции МФТИ». – Москва, 2023 г. - С.74-76.<br>15. Кедрук Е.Ю., **Палтушева Ж.У.**, Гриценко Л. В., Абдуллин Х.А. Влияние концентрации сульфата меди в растворе роста на морфологию композитов ZnO–CuO // Сборник докладов «65-й Всероссийской научной конференции МФТИ». – Москва, 2023 г. - С.70-72. |

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| | 16. **Paltusheva Zh.U.**, Gritsenko L.V. Electrochemical sensor based on zinc oxide-graphene oxide composites // Международная конференция студентов и молодых ученых «Фараби әлемі», Алматы. – 2024. – С. 114.<br>17. **Палтушева Ж.У.**, Гриценко Л. В., Syritski V. Структурные свойства оксида цинка, синтезированного золь-гель методом// ICHEPMS: Сборник тезисов II Международной конференции по физике высоких энергий, материаловедению и нанотехнологиям. - Алматы, 2024г. - С.67-68.<br>18. **Палтушева Ж.У.**, Гриценко Л.В., Syritski V. Физико-химические свойства оксида цинка для сенсорных приложений// Труды международной научно-практической конференции: Ресурсосберегающие технологии в минерально-индустриальном мегакомплексе в условиях устойчивого развития экономики. - Алматы, 2024. - С. 416–418.<br>19. **Палтушева Ж.У.**, Гриценко Л. В. Сенсор на основе оксида цинка// Международная конференция студентов и молодых ученых «Фараби әлемі». – Алматы, 2024. - С.106.<br>20. Л. В. Гриценко, **Ж.У. Палтушева** Электрохимические свойства наноструктур ZnO/GO // Сборник докладов Международной конференции «Наноуглерод и Алмаз» (НиА’2024), Россия, Санкт-Петербург, 1 – 5 июля 2024г. – С. 221.<br>21. Гриценко Л.В., Толубаева Д.Б., **Палтушева Ж.У.,** Калкозова Ж.К. Структурные свойства наноструктурированных слоев оксида цинка, Материалы Международной конференции "ФизикА.СПб", Россия, Санкт-Петербург, 21–25 октября 2024 г., С. 121-122. |
| Activities in specialized bodies over the past 5 years | |

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| full name | **Kudaibergenov Kenes Kakimovich** | | |
| position | *associate professor* | | |
| Academic career | *Initial academic appointment*<br>*Habilitation [German doctoral qualification] (subject)*<br>*Doctoral degree (14.03.13. – Chemistry)*<br>*Bachelor's degree (Chemistry)*<br>*Academic title* | KazNU named after al-Farabi, .<br>PhD<br><br><br>*associate professor* | 2003<br><br><br><br>*2012*<br>*2007*<br>*2025* |
| Employment | Associate Professor | Satbayev University | *from 2022 to the present* |

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| Research and development projects over the past 5 years | 1. BR21881939 on the topic: "Development of resource-saving energy-generating technologies for the mining and metallurgical complex and the creation of an innovative engineering center" leading researcher, Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan, 2023-2025<br>2. “Synthesis and Properties of Cellulose Nanofibers and Hybrid Alginate-Based Gels Containing Tetracycline/CuO Nanoparticles” (2023–2025, Ministry of Science and Higher Education of the Republic of Kazakhstan).<br>3. “Synthesis, Characterization, and Physicochemical Study of Biomass-Derived Sorbents for the Treatment of Industrial Wastewater Contaminated with Radionuclides” (2023–2025, Ministry of Science and Higher Education of the Republic of Kazakhstan). |
| Industry cooperation over the past 5 years | - |
| Patents and property rights | “Method for obtaining a sorption material for water purification from radionuclides.” Utility model patent Nº9470 16.08.2024<br><br>Method for obtaining a sorbent for water purification from microplastics. Utility model patent. Nº8598. 03.11.2023 |
| Important publications over the last 5 years | *Selected recent publications from the total (10):*<br>1. Mutiat O.M., Alpysbayev A., Abduakhitov D., Kudaibergenov K., Bakenov Z., Myung S.-T., Konarov A. Effect of pre-treatment conditions on the electrochemical performance of hard carbon derived from bio-waste//*RSC Advances*, 2025, 15(2): 1105-1114. DOI: 10.1039/d4ra08029g (Citations: 8, Percentile: 79%, Quartile: Q1)<br>https://www.scopus.com/pages/publications/85215663845?origin=resultslist<br>2. Kunarbekova M., Busquets R., Sailaukhanuly Y., Mikhalovsky S.V., Toshtay K., Kudaibergenov K., Azat S. Carbon adsorbents for the uptake of radioactive iodine from contaminated water effluents: A systematic review // *Journal of Water Process Engineering*, 2024, 67: 106174. DOI: 10.1016/j.jwpe.2024.106174. (Citations: 30, Percentile: 91%, Quartile Q1)<br>https://www.scopus.com/pages/publications/85204360157?origin=resultslist<br>3. L. Rakhymbay, N. Bazybek, K. Kudaibergenov, S.T. Myung, Zh. Bakenov, A. Konarov, Present development and future perspectives on biowaste-derived hard carbon anodes for room temperature sodium-ion batteries // *Journal of Power Sources*, 2024, 234347, 0378-7753. DOI: 10.1016/j.jpowsour.2024.234347. (Citations: 45, Percentile: 95%, Quartile Q1).<br>https://www.scopus.com/pages/publications/85188027394?origin=resultslist<br>4. Bexeitova K., Baimenov A., Varol E.A., Kudaibergenov K., Zhantikeyev U., Sailaukhanuly Y., Toshtay K., Tauanov Z., Azat S., Berndtsson R. Microplastics in freshwater systems: A review of classification, sources, and environmental impacts // *Chemical Engineering Journal Advances*, 2024, 20, 100649. DOI: |

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| | 10.1016/j.ceja.2024.100649 (Citations: 64, Percentile: 91%, Quartile Q1)<br>https://www.scopus.com/pages/publications/85205006260?origin=resultslist<br>5. Altynov Y., Bexeitova K., Nazhipkyzy M., Azat S., Konarov A., Rakhman D., Sahiner N., Kudaibergenov K. Nanocellulose hydrogels from agricultural wastes: methods, properties, and application prospects // *Nanoscale*, 2025, 17(20): 12580-12619. DOI: 10.1039/d5nr00997a. (Citations: 8, Percentile: 83%, Quartile Q1)<br>https://www.scopus.com/pages/publications/105005012891?origin=resultslist<br>6. Maratov M., Alpysbayev A., Abduakhitov D., Myrzakhmetov B., Kudaibergenov K., Bakenov Z., Myung S.-T., Konarov A. Optimizing nitrogen doping strategies in hard carbon for enhanced performance in sodium-ion batteries // *Carbon Trends*, 2025, 20: 100523.. DOI: 10.1016/j.cartre.2025.100523. (Citations: 0, Percentile: 75%, Quartile Q1)<br>https://www.scopus.com/pages/publications/105006718289?origin=resultslist<br>7. Bexeitova K., Zhantikeyev U., Yeszhan Y., Sapargali I., Kudaibergenov K., Toshtay K., Mikhalovsky S., Amrousse R., Berndtsson R., Azat S. Evaluating Microplastic Detection Techniques in Human-Impacted Water Systems: A Mini-Review // *ES Energy and Environment*, 2024, 25, 1233. DOI: 10.30919/esee1233 (Citations: 12, Percentile: 82%, Quartile Q1)<br>https://www.scopus.com/pages/publications/85206900448?origin=resultslist<br>8. Ilyin Yu.V., Kudaibergenov K.K., Sharipkhanov S.D., Mansurov Z.A., Zhaulybayev A.A., Atamanov M.K. Surface Modifications of CuO Doped Carbonaceous Nanosorbents and their $CO_2$ Sorption Properties // *Eurasian Chemico-Technological Journal*, 2023, 25(1): 33-38. DOI: 10.18321/ectj1493. (Citations: 5, Percentile: 33%, Quartile Q3) |
| Activities in specialized bodies over the past 5 years | - |

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| full name | ***Nugymanova Kenzhegul Nukerbankyzy*** | | |
| position | *Lecturer* | | |
| Academic career | *Education (Metallurgical Engineer, complete higher education – 5 years)* | *Kazakh National Technical University named K.I. Satbaev* | 2001 – 2006 |
| | *Master degree* | *L.N. Gumilyov Eurasian National University* | 2010 – 2012 |
| | *Doctoral degree* | *Satbayev University* | from 2024 to the present |

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| Employment | *Laboratory* Assistant | *Miras International School* | From 26 August 2008 – 31 August 2010 |
| | *Lecturer* | *College of Law, Economics, and Nanotechnology* | From 01 September 2010 – 09 August 2011 |
| | *Highly qualified laboratory assistant* | *L.N. Gumilyov Eurasian National University, Faculty of Physics and Technology, Department of General and Theoretical Physics* | From 19 March 2012 – 10 September 2012 |
| | *Highly qualified laboratory assistant, Junior research fellow* | *L.N. Gumilyov Eurasian National University, Faculty of Physics and Technology, Department of Theoretical Physics* | *From 11 September 2012 – 02 September 2019* |
| | *Assistant* | *The Department of Materials Science Nanotechnology and Engineering Physics, Mining and Metallurgical Institute, K.I. Satpayev KazNRTU* | *From 05 September 2019- 2022* |
| | *Teacher* | *The Department of Materials Science Nanotechnology and Engineering Physics, Mining and Metallurgical Institute, K.I. Satpayev KazNRTU (part-time)* | *From 05 September 2022 - till present* |
| | *Research scientist* | *International Research and Development Center for advanced functional and composite materials.K.I. Satpayev KazNRTU (part-time)* | *From 01 September 2025 – till present* |
| Research and development projects over the past 5 years | - | | |
| Industry cooperation over the past 5 years | - | | |

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| Patents and property rights | - |
| Important publications over the last 5 years | - |
| Activities in specialized bodies over the past 5 years | - |