



**Aitolkyn  
Sailaubekkyzy Uali**

Associate Professor, Department  
of Chemistry

**Contact details:**

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**Professional activity:**

- 2009-2017: Department of Chemical Engineering and Petrochemistry, Buketov Karaganda State University.
- 2017-present time: Chemistry Department of Gumilyov Eurasian National University.

**Awards and scholarships:**

- Award of young scientists of Karaganda Town Council "Daryn" on the nomination "Young Scientist of the Year" (2011);
- The State Grant and title "The Best University Lecturer" (2016);
- The State Scholarship for young talented scientists (2016);
- The Bolashak Scholarship (2021).

**Scientific internships:**

Sokolsky Institute of fuel, catalysis, and electrochemistry (2007),  
Nikolaev Institute of Inorganic Chemistry of SB RAS (2008), NR Tomsk Polytechnic University (2012), NR Tomsk State University (2013), Dostoevsky Omsk State University (2015), Imperial College London (2022).

**Education, academic degree and title:**

2001-2006: Buketov Karaganda State University, Faculty of Chemistry, Specialty "Chemical, Forensic and Environmental Expertise", Undergraduate, Qualification "Chemist-Expert".  
2006-2009: Buketov Karaganda State University, Department of Physical and Analytical Chemistry, Specialty "Physical Chemistry", Postgraduate.  
2009: PhD in Physical Chemistry (Cand.Chem.Sci.).  
2015: Docent in Chemical Sciences.

**Research fields:** physical chemistry of solutions; thermodynamics of solutions, enrichment of polymetallic ores and flotation, carbon materials, sorption, electroanalytical chemistry, ion-selective electrodes.

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<https://scholar.google.com/citations?user=PsuLQTMAAA&hl=ru>

<https://www.researchgate.net/profile/Aitolkyn-Uali>

**Research projects:**

- 1) **The choice of technological conditions for the hydrogenation of coal in Central Kazakhstan using preliminary chemical activation of the organic mass of coal** (state registration number 0106RK00671), funded by the Committee Science of RK (2006-2009), engineer.
- 2) **The investigation of the conditions for the formation of a mesoporous mesophase structure of silica gel modified with metal acetylacetonates** (registration №12-03-90906-mob\_sng\_st), funded by the Russian foundation for basic research, National Research Tomsk Polytechnic University (2012).
- 3) **The investigation of the extraction properties of the polymethacrylate polymer matrix** (registration №013-03-90924), funded by the Russian foundation basic research, National Research Tomsk Polytechnic University (2013), researcher.
- 4) **The investigation of the thermodynamic and kinetic laws of the influence of metal ions and their complexes with amino acids on the directed synthesis of biological material** (registration №015-33-50250), funded by Russian foundation for basic research, F. Dostoevsky Omsk State University (2015), researcher.
- 5) **Scientifically based selection of domestic known and artificially synthesized flotation agents for flotation enrichment of polymetallic ores** (2013-2015), funded by the Committee Science of RK, senior researcher.
- 6) **Development and chemical/physical modification of heat-accumulating materials on the basis of physicochemical modeling of phase diagrams in two- and three-component mixtures** (2014-2016), funded by the Committee Science of RK, leading researcher.
- 7) **The directed formation of the surface properties of ores by mixtures of different polarity collectors for the purpose of collective- selective separation of non-ferrous metals** (2015-2017), funded by the Committee Science of RK, leading researcher.

**Courses:** Chemical thermodynamics and equilibrium in solutions. Kinetics and electrochemistry. Colloidal Chemistry.

**Main publications:**

1. Sh. K. Amerkhanova, S. A. Frolova, R. M. Shlyapov, A. S. Uali, D. S. Belgibayeva & L. A. Kusepova (2022) Influence of alternating electric current on the process of heat accumulation in a mixture of  $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O} - \text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ , International Journal of Sustainable Energy, DOI: [10.1080/14786451.2022.2051507](https://doi.org/10.1080/14786451.2022.2051507)
  2. Sh. Amerkhanova, R. Shlyapov, A. Uali, D. Belgibaeva (2022) Prospects of application of iron-containing carbon-paste electrode in electrochemical analysis. Materials Today: Proceedings, <https://doi.org/10.1016/j.matpr.2021.05.437>
  3. S. Amerkhanova, V. Aleksandrov, R. Shlyapov, and A. Uali (2019) Physicochemical Particular Qualities of the Crystallization Process of Inorganic Heat-Storage Materials' Melts. Eurasian Chem.-Technol. J. <https://doi.org/10.18321/ectj868>
  4. Sh. Amerkhanova, A. Uali, R. Shlyapov (2018) Sorption of Heavy Metal Ions from Water by Natural Apatite Ore. J. Water Chem. Technol. <https://doi.org/10.3103/S1063455X18020030>
  5. Sh. Amerkhanova, R. Shlyapov, A. Uali (2017) The active carbons modified by industrial wastes in process of sorption concentration of toxic organic compounds and heavy metals ions. Colloids and Surfaces A: Physicochemical and Engineering Aspects, <https://doi.org/10.1016/j.colsurfa.2017.07.015>
  6. Sh.K.Amerkhanova, R.Shlyapov, A.S. Uali (2014) On the interaction of electrochemical and physicochemical indicators of d metal complexes with sulfur-containing ligands. R.J. Non-Ferrous Metals. <https://doi.org/10.3103/S1067821214040038>
- Sh.K.Amerkhanova, R.Shlyapov, A.S. Uali (2014) Thermodynamic Aspects of the Selection of Sulfur-Containing Collectors during Flotation of Sulfide Ores. R.J. Non-Ferrous Metals. <https://doi.org/10.3103/S106782121403002X>