Overview of the IV International Conference on Geotechnology, Mining and Rational Use of Natural Resources – GeoTech-IV 2024

Bakhtiyor Mardonov¹, Igor Kovalev³⁴⁵, Akbar Abrorov²*, Yusuf Beshimov², Yorkin Kadirov¹, and Navruzbek Khurramov¹

¹Navoi State University of Mining and Technologies, Navoi, Uzbekistan
²Bukhara Engineering-Technological Institute, Bukhara, Uzbekistan
³Krasnoyarsk Science and Technology City Hall of the Russian Union of Scientific and Engineering Associations, Krasnoyarsk, Russia
⁴Krasnoyarsk State Agrarian University, Krasnoyarsk, Russia
⁵Siberian Federal University, Krasnoyarsk, Russia

Abstract. The Overview is devoted to the main results of the IV International Conference “GeoTech-IV 2024” which was held by Navoi State University of Mining and Technologies in Uzbekistan on 3-5 April 2024. It describes the main directions and gives the details about the participants and the proceedings.

This Volume contains Proceedings of the IV International Conference on Geotechnology, Mining and Rational Use of Natural Resources – GeoTech-IV 2024 organized by Navoi State University of Mining and Technologies on 3-5 April 2024 in Uzbekistan.

The Organizers and Partners of the Conference were Joint Stock Company Navoi Mining and Metallurgical Company (Navoi, Uzbekistan), Akita University (Akita city, Japan), Chinese Mining and Technology University (China, Beijing), International Union of Scientific and Engineering Public Associations (Moscow, Russia), Bukhara Engineering and Technological Institute (Bukhara, Uzbekistan), Zhetysu University named after I. Zhansugurov (Taldykorgan, Kazakhstan), Pontifical Catholic University of Chile (Santiago, Chile), Namangan Engineering and Technological Institute (Namangan, Uzbekistan).

The purpose of the conference was to discuss scientific and methodological foundations and practical solutions for the introduction of a new technological structure of the mining and metallurgical industry in the development of solid mineral deposits using combined geotechnologies and to share scientific studies on the introduction of technical development and energy efficiency, development of evidence-based conclusions and recommendations for the introduction of innovative developments into production.

Issues of innovative technologies and developments in the mining industry, processing of minerals, metallurgy, energy, chemical technology and processing of industrial man-made waste, environmental safety, green technologies, current problems and development trends of technosphere safety in high-tech industries were also in the agenda of the conference.

* Corresponding author: abrorov1975@mail.ru

© The Authors, published by EDP Sciences. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).
The aims of the Conference included organization of cooperation with foreign scientists in conducting research on the efficient processing of minerals, studying advanced foreign technologies and innovative developments, assessing the possibility of their use, solving the problem of training qualified personnel in this field.

The Program Committee and Editorial Board included famous professors and scientists from the Joint-Stock Company "Navoi Mining and Metallurgical Company" (Uzbekistan), Navoi State University of Mining and Technologies (Uzbekistan), China University of Mining and Technology (China), Chile Catholic University (Chile), Polytechnic University of Madrid (UPM) (Spain), University of mines and technology (UMaT), Tarkwa (Ghana-West Africa), Yeditepe University, Istanbul (Turkey), Nagoya University (Japan), Bukhara Engineering Technological Institute (Uzbekistan), National Research University - Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (Uzbekistan) (see Appendix 1).

The Conference was held in 9 main scientific sections: Geology, geophysics and geotechnology; Enrichment of mineral raw materials; Biogeochemical cycles and biotechnological processes in metallurgy; Geoecology and rational use of natural resources; Energy saving and energy efficiency of mining enterprises; Geochemistry and chemical processing of minerals; Environmental risk assessment of metallurgical processes; Automation, digital transformation and intellectualization for the sustainable development of mining systems; Infrastructure problems of mining engineering, electromechanics and energy.

Scientists and specialists from Uzbek and foreign universities, research institutes, enterprises, design and research centres participated in GeoTech-IV 2024.

The international scientists from such countries as Cuba, Tajikistan, Kyrgyzstan, China, Belarus, Kazakhstan, Nigeria, Russia took part in the conference.

All participants were invited to present their papers based on their reports. All submitted manuscripts went through the independent peer review process. We are very grateful to all reviewers for their time and highly professional remarks and reviews.

More than 350 reports were submitted to the Organizing Committee of the Conference. Only best reports were selected for inclusion into this Volume after the review process. All the papers were subjected to rigorous peer-review by conference committee members and international reviewers. The papers were selected based on their quality and relevance to the Conference directions and on the results of their presentation at the Conference session.

The Volume presents scientific papers in 6 main sections: Geology, geophysics, geotechnology and enrichment of mineral raw materials; Geoecology, geochemistry and rational use of natural resources, environmental protection; Energy saving and energy efficiency of mining enterprises, other industries and transport infrastructure; Environmental risk assessment of metallurgical processes, green technologies and sustainable development; Automation, digital transformation and intellectualization for the sustainable development; Infrastructure problems of mining engineering, transport, electromechanics and energy.

Joint Stock Company Navoi Mining and Metallurgical Company (Navoi, Uzbekistan) sponsored the Conference “GeoTech-IV 2024”.

On behalf of the conference committee and organizers, we would like to thank all the authors who contributed to this Volume as well as to the reviewers, speakers and all the conference participants for their support to GeoTech-IV 2024.
Appendix 1

**International Programme Committee**

Kuvandik Sanakulov, DrSci, Professor, Chairman of the Board - General Director of the Joint-Stock Company "Navoi Mining and Metallurgical Company" (Uzbekistan)

Bakhtiyor Mardonov, DrSci, Professor, Rector of Navoi State University of Mining and Technologies (Uzbekistan)

Tulkin Nurmurodov, DrSci, Professor, Vice-Rector for Science and Innovations of Navoi State University of Mining and Technologies (Uzbekistan)

Prof. Zhengfu Bian, Vice-President of China University of Mining and Technology, Professor of School of Environment Science and Spatial Information, China University of Mining and Technology (China)

Prof. Xibo Yuan, Professor of School of Electrical Engineering, China University of Mining and Technology (China)

Ms. Yang Ying (Flora), PhD, Director of International Cooperation and Exchange Office, China University of Mining and Technology (China)

Shengyu Jing, PhD, Associate Professor, School of Information and Control Engineering, China University of Mining and Technology (China)

Juan Carlos Salas, PhD, Adjunct Associate Professor, Chile Catholic University (Chile)

Francisco Bozinovic, Doctor in Sciences, full professor, UC Faculty of Biological Sciences, National Award of Natural Sciences 2020, Chile Catholic University (Chile)

Aníbal Pauchard, Director, Institute of Ecology and Biodiversity, PhD in Forest Ecology, Full professor at Chile Catholic University (Chile)

Professor Esteban Ferrer, PhD, School of Aeronautics, Polytechnic University of Madrid (UPM) (Spain)

Maria Dolores Herrero Palenzuela, PhD, Polytechnic University of Madrid (UPM) (Spain)

Richard Amankwah, PhD, Professor, Vice Chancellor of University of mines and technology (UMaT), Tarkwa (Ghana-West Africa)

Michael Odoom Mensah, Professor, Chief Editor of Ghana Mining Journal, University of mines and technology (UMaT), Tarkwa (Ghana-West Africa)

Prof. Anthony Simons, Pro-Vice Chancellor, Mechanical Engineering Department, University of mines and technology (UMaT), Tarkwa (Ghana-West Africa)

Assoc. Prof Eric Broni-Bediako, PhD, Dean, School of Petroleum Studies, University of mines and technology (UMaT), Tarkwa (Ghana-West Africa)
Dr. Harrison Osei, PhD, Head, Petroleum and Natural Gas Engineering Department, University of mines and technology (UMaT), Tarkwa (Ghana-West Africa)

Prof. Dr. Ahmet Aydin, PhD, Vice Rector for Academic Affairs, Yeditepe University, Istanbul (Turkey)

Prof. Dr. Fatma_YESIM Ekinci, Vice-Rector, Yeditepe University, Istanbul (Turkey)

Burcu Atalay Emre, PhD, Coordinator International Exchange and Cooperation Office, Yeditepe University, Istanbul (Turkey)

Kiyohisa Nishiyama, PhD, Designated Lecturer, Nagoya University Institute of International Education & Exchange, International Collaboration Planning Center (Japan)

Mirzo Sharipov, DrSci, Professor, Vice-Rector for Science and Innovations of Bukhara Engineering Technological Institute (Uzbekistan)

Akbar Abrorov, PhD, Associate Professor, Bukhara Engineering Technological Institute (Uzbekistan)

Solikh Astanov, DrSci, Professor of Bukhara Engineering Technological Institute (Uzbekistan)

Khairiddin Rakhmonov, DrSci, Professor, Head of the Department of Technological Machines and Equipment of Bukhara Engineering Technological Institute (Uzbekistan)

Fazliddin Kurbanov, DrSci, Professor of the Department of Technological Machines and Equipment of Bukhara Engineering Technological Institute (Uzbekistan)

Komil Astanakulov, Professor, Head of the Department Agricultural machines, National Research University - Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (Uzbekistan)

Shukhrat Alikulov, Vice-Rector for International Affairs of Navoi State University of Mining and Technologies (Uzbekistan)

Nabizhon Abduazizov, Vice-Rector for Education of Navoi State University of Mining and Technologies (Uzbekistan)

Zhonibek Mavlonov, PhD, Associate Professor, Head of Scientific Department of Navoi State University of Mining and Technologies (Uzbekistan)

Ilkhom Mislibaev, DrSci, Professor, Dean of the Mining Faculty of Navoi State University of Mining and Technologies (Uzbekistan)

Nodir Doniyarov, DrSci, Professor, Dean of the Faculty of Chemistry and Metallurgy of Navoi State University of Mining and Technologies (Uzbekistan)

Askar Karshiboev, DrSci, Professor, Dean of the Energy and Mechanical Faculty of Navoi State University of Mining and Technologies (Uzbekistan)
Alisher Tukhtashev, DrSci, Assistant Professor, Head of the Department of Mining of Navoi State University of Mining and Technologies (Uzbekistan)

Sherzod Zairov, DrSci, Professor of the Department of Mining of Navoi State University of Mining and Technologies (Uzbekistan)

Bakhodir Mukhiddinov, DrSci, Professor of the Department of Chemical Technology of Navoi State University of Mining and Technologies (Uzbekistan)

Tulkin Botirov, DrSci, Professor of the Department of Automation and Control of Navoi State University of Mining and Technologies (Uzbekistan)

Yorkin Kadirov, PhD, Assistant Professor, Head of the Department of Automation and Control of Navoi State University of Mining and Technologies (Uzbekistan)

Olim Sattarov, PhD, Assistant Professor of the Department of Automation and Control of Navoi State University of Mining and Technologies (Uzbekistan)