

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

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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.

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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.

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