Preface

The conference proceedings contain the selected papers presented at the International Scientific Conference “Knowledge-based technologies in development and utilization of mineral resources” held on 4-7 June 2019 within the framework of the International Specialized Exhibition of Mining Technologies “Russian Coal and Mining” in Novokuznetsk, Russia. The conference was dedicated to the 300th anniversary of Kuzbass.

The conference was organized by Siberian State Industrial University (Novokuznetsk, Russia), the Federal Research Center for Coal and Coal Chemistry of the Siberian Branch of the Russian Academy of Sciences (Kemerovo, Russia), Scientific Research Institute for Industrial Research and Environmental Safety in the Mining Industry (Kemerovo, Russia), the University of Science and Technology Liaoning (Anshan, China), Expo center “Kuzbass Fair” (Novokuznetsk, Russia). The event was actively supported by the Administration of Kemerovo Region and Novokuznetsk.

The conference is a recognized scientific and practical forum for professional discussion of problems related to the best practices in the mining industry, innovations in development of geotechnologies used for extraction of mineral resources, provision of industrial and environmental safety in coal mining regions. Every year, there is an increasing interest in the conference and the results of its work on the part of Russian and foreign scientists, specialists from mining enterprises, design and specialized organizations, heads of mining, coal processing, machine-building and transport companies. The conference was attended by scientists and specialists of research centers, universities, organizations and enterprises of Russia, Germany, Donetsk People’s Republic, India, Canada, USA, Tajikistan.

More than 100 papers were submitted to the Conference Organizing Committee that correspond to the research topics of leading domestic and foreign scientific and design organizations. Part of the reports is devoted to the discussion of the results obtained within the scientific projects supported by the grants of the Russian Foundation for Basic Research, Russian Science Foundation and the Ministry of Science and Higher Education of the Russian Federation.

The present issue of IOP Conference Series: Earth and Environmental Science contains 65 specially selected research papers covering the following topics: development of technologies for the extraction, processing and utilization of mineral raw materials using modern models and methods for managing complex and hazardous production, including remote control of robot-equipped manipulators; the creation of methods and means of active influence on coal seams to increase the coefficient of their degassing to a level that excludes the occurrence of gas-dynamic phenomena in coal mines; the creation of a transport and logistics system for the interaction of producers and consumers of energy resources, including using the bowels of the Arctic, the raw material base of oil fields; improvement of the environmental support system for resource-producing regions.

The Organizing Committee expresses deep gratitude to all organizers and participants of the conference for their active participation and discussion of the theoretical foundations and results of the practical application of innovative ways and means of integrated use of mineral resources in the safe working conditions, which is a significant contribution to the development of mining science and practice.

The presented scientific papers will contribute to the creation of innovative technologies and technical means, and stimulate their implementation in Russia and abroad.

Deputy Chairman of the Program Committee
Doctor of Technical Sciences, Professor Viktor Fryanov