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Contemporary exploitation of natural raw materials by borehole, opencast, underground, seabed, and anthropogenic deposits is closely related to, among others, geomechanics, automation, computer science, and numerical methods. More and more often, individual fields of science coexist and complement each other, contributing to lowering exploitation costs, increasing production, and reduction of the time needed to prepare and exploit the deposit. The continuous development of national economies is related to the increasing demand for energy, metal, rock, and chemical resources. Very often, exploitation is carried out in complex geological and mining conditions, which are accompanied by natural hazards such as rock bursts, methane, coal dust explosion, spontaneous combustion, water, gas, and temperature. In order to conduct a safe and economically justified operation, modern construction materials are being used more and more often in mining to support excavations, both under static and dynamic loads. The individual production stages are supported by specialized computer programs for cutting the deposit as well as for modeling the behavior of the rock mass after excavation in it. Currently, the automation and monitoring of the mining works play a very important role, which will significantly contribute to the improvement of safety conditions. In this Special Issue of *Energies*, we focus on innovative laboratory, numerical, and industrial research that has a positive impact on the development of safety and exploitation in mining.



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