1. Record Nr. UNINA9910647219803321

Titolo	Analytical, Numerical and Big-Data-Based Methods in Deep Rock Mechanics / / edited by Shaofeng Wang, Xin Cai, Jian Zhou
Pubbl/distr/stampa	[Place of publication not identified] : , : MDPI - Multidisciplinary Digital Publishing Institute, , 2023
ISBN	3-0365-5762-8
Descrizione fisica	1 online resource (432 pages)
Disciplina	624.15132
Soggetti	Rock mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Shaofeng Wang, Xin Cai, Jian Zhou, Zhengyang Song and Xiaofeng Li Analytical, Numerical and Big-Data-Based Methods in Deep Rock Mechanics Reprinted from: Mathematics 2022, 10, 3403, doi:10.3390 /math10183403 . 1 -- Jianguo Zhang, Peitao Li, Xin Yin, Sheng Wang and Yuanguang Zhu Back Analysis of Surrounding Rock Parameters in Pingdingshan Mine Based on BP Neural Network Integrated Mind Evolutionary Algorithm Reprinted from: Mathematics 2022, 10, 1746, doi:10.3390/math10101746 . 7 -- Chong Li and Zhijun Xu Numerical Modeling and Investigation of Fault-Induced Water Inrush Hazard under Different Mining Advancing Directions Reprinted from: Mathematics 2022, 10, 1561, doi:10.3390/math10091561 . 23 -- Yangchun Wu, Linqi Huang, Xibing Li, Yide Guo, Huilin Liu and Jiajun Wang Effects of Strain Rate and Temperature on Physical Mechanical Properties and Energy Dissipation Features of Granite Reprinted from: Mathematics 2022, 10, 1521, doi:10.3390/math10091521 . 35 -- Laifu Song, Hao Ying, Wei Wang, Ning Fan and Xueming Du Reliability Modelling of Pipeline Failure under the Impact of Submarine Slides-Copula Method Reprinted from: Mathematics 2022, 10, 1382, doi:10.3390 /math10091382 . 55 -- Minglei Zhai, Dan Ma and Haibo Bai Diffusion Mechanism of Slurry during Grouting in a Fractured Aquifer: A Case Study in Chensilou Coal Mine, China Reprinted from: Mathematics 2022, 10, 1345, doi:10.3390/math10081345 . 81 -- Yuan Zhao, Guoyan Zhao, Jing Zhou, Xin Cai and Ju Ma Mining Stress Evolution Law

of Inclined Backfilled Stopes Considering the Brittle-Ductile Transition in Deep Mining Reprinted from: Mathematics 2022, 10, 1308, doi: 10.3390/math10081308 . 95 -- Ying Chen, Shirui Chen, Zhengyu Wu, Bing Dai, Longhua Xv and Guicai Wu Optimization of Genetic Algorithm through Use of Back Propagation Neural Network in Forecasting Smooth Wall Blasting Parameters Reprinted from: Mathematics 2022, 10, 1271, doi:10.3390/math10081271 . 117 -- Baoping Chen, Bin Gong, Shanyong Wang and Chun'an Tang Research on Zonal Disintegration Characteristics and Failure Mechanisms of Deep Tunnel in Jointed Rock Mass with Strength Reduction Method Reprinted from: Mathematics 2022, 10, 922, doi:10.3390/math10060922 139 -- Diyuan Li, Zida Liu, Danial Jahed Armaghani, Peng Xiao and Jian Zhou Novel Ensemble Tree Solution for Rockburst Prediction Using Deep Forest Reprinted from: Mathematics 2022, 10, 787, doi:10.3390/math10050787 159 -- Kewei Liu, Shaobo Jin, Yichao Rui, Jin Huang and Zhanxing Zhou Effect of Lithology on Mechanical and Damage Behaviors of Concrete in Concrete-Rock Combined Specimen Reprinted from: Mathematics 2022, 10, 727, doi:10.3390/math10050727 183 -- Tong Zhang, Xiaodong Nie, Shuaibing Song, Xianjie Hao and Xin Yang Modeling Uranium Transport in Rough-Walled Fractures with Stress-Dependent Non-Darcy Fluid Flow Reprinted from: Mathematics 2022, 10, 702, doi: 10.3390/math10050702 201 -- Shaofeng Wang, Yu Tang, Ruilang Cao, Zilong Zhou and Xin Cai Regressive and Big-Data-Based Analyses of Rock Drillability Based on Drilling Process Monitoring (DPM) Parameters Reprinted from: Mathematics 2022, 10, 628, doi:10.3390 /math10040628 223 -- Longjun Dong, Lingyun Zhang, Huini Liu, Kun Du and Xiling Liu Acoustic Emission b Value Characteristics of Granite under True Triaxial Stress Reprinted from: Mathematics 2022, 10, 451, doi:10.3390/math10030451 243 -- Barkat Ullah, Muhammad Kamran and Yichao Rui Predictive Modeling of Short-Term Rockburst for the Stability of Subsurface Structures Using Machine Learning Approaches: t-SNE, K-Means Clustering and XGBoost Reprinted from: Mathematics 2022, 10, 449, doi:10.3390/math10030449 259 -- Min Wang, Qifeng Guo, Yakun Tian and Bing Dai Physical and Mechanical Properties Evolution of Coal Subjected to Salty Solution and a Damage Constitutive Model under Uniaxial Compression Reprinted from: Mathematics 2021, 9, 3264, doi:10.3390/math9243264 279 -- Bo Sun, Zhiyu Zhang, Jiale Meng, Yonghui Huang, Hongchao Li and Jun Wang Research on Deep-Hole Cutting Blasting Efficiency in Blind Shafting with High In-Situ Stress Environment Using the Method of SPH Reprinted from: Mathematics 2021, 9, 3242, doi:10.3390/math9243242 299 -- Zhuo Rong, Xiang Yu, Bin Xu and Xueming Du Reliability Analysis of High Concrete-Face Rockfill Dams and Study of Seismic Performance of Earthquake-Resistant Measures Based on Stochastic Dynamic Analysis Reprinted from: Mathematics 2021, 9, 3124, doi:10.3390 /math9233124 315 -- Yuantian Sun, Guichen Li and Sen Yang Rockburst Interpretation by a Data-Driven Approach: A Comparative Study Reprinted from: Mathematics 2021, 9, 2965, doi:10.3390 /math9222965 333 -- Jiasen Liang, Shaokun Ma and Xueming Du Diffusion Model of Parallel Plate Crack Grouting Based on Foaming Expansion Characteristics of Polymer Slurry Reprinted from: Mathematics 2021, 9, 2907, doi:10.3390/math9222907 347 -- Shan Yang, Zitong Xu and Kaijun Su Variable Weight Matter-Element Extension Model for the Stability Classification of Slope Rock Mass Reprinted from: Mathematics 2021, 9, 2807, doi:10.3390 /math9212807 365 -- Kexin Yin, Lianghui Li and Eugenia Di Filippo A Numerical Investigation to Determine the p-y Curves of Laterally Loaded Piles Reprinted from: Mathematics 2021, 9, 2783, doi:10.3390

/math9212783 379 -- Lihai Tan, Ting Ren, Linming Dou, Xiaohan Yang, Gaofeng Wang and Huaide Peng Analytical Stress Solution and Numerical Mechanical Behavior of Rock Mass Containing an Opening under Different Confining Stress Conditions Reprinted from: Mathematics 2021, 9, 2462, doi:10.3390/math9192462 393 -- Daoyuan Sun, Yifan Wu, Longjun Dong and Qiaomu Luo Closed-Form Solutions for Locating Heat-Concentrated Sources Using Temperature Difference Reprinted from: Mathematics 2022, 10, 2843, doi:10.3390 /math10162843 . 411.

Sommario/riassunto

With the increasing requirements for energy, resources, and space, numerous rock engineering projects (e.g., mining, tunnelling, underground storage, and geothermal and petroleum engineering) are more often being constructed and operated in large-scale, deep underground, and complex geology environments. Meanwhile, more and more unconventional rock failures and rock instabilities (e.g., rockbursts, large-scale collapses, and mine earthquakes) are occurring and severely threatening the safety of underground operations. It is well-recognized that rocks have multiscale structures from minerals, particles, fractures, fissures, joints, and stratification to faults and involve multiscale fracture processes. In the deep earth, rocks are commonly subjected to complex high-stress and strong-dynamic disturbances simultaneously. In addition, there are many multiphysics coupling processes, such as the coupled thermo-hydromechanical interaction in fractured porous rocks. It is still difficult to understand rock mechanics and to characterize rock behaviors with complex stress conditions, multiphysics processes, and multiscale changes. The primary aim of this Special Issue is to bring together original research discussing innovative efforts on analytical, numerical, and big-data-based methods in rock mechanics. It includes 25 manuscripts that illustrate the richness and challenging nature of deep rock mechanics.