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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.