

## Special Issue “Fracture of Rocks and Minerals Conference at the Ural State Mining University, Yekaterinburg, Russia”

### PREFACE

Currently, the philosophical concept of the structural hierarchy of matter holds a leading position in modern science, while mathematical modelling is the important tool for the development of effective methods for solving current fundamental and applied problems. Geoscience and materials science are areas in which these concept and approach were successfully applied for many years, despite differences in the subjects of researchers. Complex conditions, macro- and megascopic scales, as well as different time intervals lead to specific behavior of rocks and other geological objects. The macroscopic and megascopic scale is the main areas of interest of geomechanics and partially rock mechanics, while materials science concentrates mainly on the micro scale and even the lattice level. The multiscale nature of the processes of deformation and fracture of rocks and massifs makes it extremely important to study the relationship between their structure and mechanical properties. The identified patterns based on modern achievements in the fields of mechanics, physics of strength of rocks and materials with defects will serve as the basis for the development of mathematical models and effective methods for solving pressing problems in the Earth science.

The conference of “Fracture of Rocks and Minerals”, which was held April 4–7, 2023 at the Ural State Mining University, Yekaterinburg, Russia, served as a bridge connecting the efforts of researchers in the fields of rock mechanics, geomechanics and materials science to better understand the nature of the strength of rocks and their mechanical behavior. This volume of RAMT contains selected papers presented at the conference and covering a wide range of problems in geomechanics and its industrial applications, including the relationship between microstructure and deformation behavior of rocks of various origins.

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