



# Rock Mechanics and Engineering

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and Field Testing

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Through engineering activities involving rock have been underway for millennia, we may mark the beginning of the modern era from the year 1952 when the International Society for Rock Mechanics (ISRM) was formally established in Salzburg, Austria. From that time, both rock engineering itself and the associated rock mechanics research has increased in activity by leaps and bounds, so much so that it is difficult for an engineer or researcher to be aware of all the emerging developments, especially since the information is widely spread in reports, magazines, journals, books and the Internet. It is appropriate, if not essential, therefore that periodically an easily accessible general survey should be made of the currently available knowledge. Thus, we are very grateful to Professor Xia-Ting Feng and his team, and to the Taylor & Francis Group for preparing this extensive 2017 "Rock Mechanics and Engineering" compendium purporting the state-of-the-art—and which is a publication fitting well within the scope of Springer's portfolio of ground engineering related titles.

There has previously only been one similar such survey, "Comprehensive Rock Engineering", which was also published as a five-volume set but by Pergamon Press in 1993. Given the exponential increase in rock engineering related activities and research since that year, we must also congratulate Professor Feng and the publisher for the production of this current five-volume survey. Volumes 1 and 2 are concerned with the basic principles plus laboratory and field testing, i.e., understanding the subject and determining the key rock property information. Volume 3 covers analysis, modelling and design, the procedures by which one can predict the rock behaviour in engineering terms. Then, Volume 4 describes engineering procedures and Volume 5 presents a series of case examples, both these volumes illustrating "how things are done". I pledge my thanks with their constituents: deepening our through continually the complex interaction of rock mechanics and rock engineering knowledge and associated sciences. Looking through the contents of the compendium, I am particularly pleased that Professor Feng has placed emphasis on the strength of rock, modelling rock failure, Rock and Underground Research Laboratories (URLs), numerical modelling, etc.—which have revolutionised the approach to rock engineering design—and the progression of excavation, support and monitoring, together with supporting case studies. These subjects, enhanced by the other contributions, are the essence of the field of rock mechanics and rock engineering. To read through the chapters is not only to understand the subject but also to comprehend the state of current knowledge. I have worked with Professor Feng on a variety of rock mechanics and rock engineering projects and am delighted to say that his efforts in fulfilling, developing and setting