

Analysis of Discontinuous Deformation: New Developments and Applications

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About the Book

This book contains the 7 keynote papers written by the industry experts, international renowned researchers and specialists and 73 technical papers which reflect the state-of-the-practice on the Analysis of Discontinuous Deformation: New development and Applications. These papers were selected after a rigorous review process. It represents the latest advances in numerical and analytical methods related to rock mechanics and engineering.

Following the tradition of the series, the main schemes of the papers are on the key block theory and its engineering applications, the discontinuous deformation analysis (DDA) method and the numerical manifold method (NMM). However, other relevant topics, for example, the distinct/discrete element method, the meshless method, the finite element method in rock mechanics and engineering applications are also included.

For rock masses where the discontinuities dominate their behaviour in a rock engineering system such as rock slopes and underground rock caverns, the analysis of discontinuous deformation is of critical importance in the stability analysis and engineering design. It is hoped that this book serves as a useful reference for both researchers and engineers on the new developments and applications of the various available modeling techniques and tools in this increasingly important field of rock mechanics and engineering.

Topics covered:

- Key Block Theory and Engineering Applications
- Discontinuous Deformation Analysis (DDA) Method
- Numerical Manifold Method (NMM)
- Distinct/Discrete Element Method (DEM)
- Application of UDEC, 3DEC and PFC codes
- Meshless Method and Rock Engineering Applications
- Contact Algorithms
- Wave Propagation through Rock Joint and Jointed Rock Mass
- Deformation Analysis of Heterogeneous Materials
- Other Advanced Analytical and Numerical Methods in Rock Engineering
- Experimental Techniques and Measurement of Discontinuous Deformation
- Case Studies and Other Relevant Topics

Readership: Graduate students, academics and researchers in civil engineering and engineering mechanics. This book also a useful source of reference to structural, civil and geotechnical engineers.



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