

1. Record Nr.	UNINA9911141600303321
Titolo	Advances in discontinuous numerical methods and applications in geomechanics and geoengineering : proceedings of the 10th International Conference on Advances in discontinuous numerical methods and applications in geomechanics and geoengineering, ICADD, Honolulu, Hawaii, 6-8 December 2011 / / Jian Zhao. [et al.], editors
Pubbl/distr/stampa	Boca Raton, Fla. : , : CRC Press, , 2012
ISBN	9786613525048 9781136291067 1136291067 9781280121180 1280121181 9780203114421 0203114426
Edizione	[1st ed.]
Descrizione fisica	1 online resource (440 p.)
Altri autori (Persone)	ZhaoJian <1960->
Disciplina	624.151
Soggetti	Engineering geology Soil mechanics Rock mechanics Numerical analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"A Balkema book."
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Front Cover; Table of contents; Preface; Keynotes; Rock block stability analysis of slopes and underground power houses; Recent developments and future trends in distinct element methods- UDEC/3DEC and PFC codes; Application of DDA and NMM to practical problems in recent new insight; Complete and high order polynomial displacement approximation and its application to elastic mechanics analysis based on DDA; Discontinuum based micromechanics modelling methods; Immersed boundary based fluid coupling in mechanics of discontinua; Toward a realistic rock mass numerical model

DDARF-A simple solution for simulating rock fragmentation
 Discontinuous deformation analysis method and applications; New contact resolution algorithm using two-stage contact definition and rounding scheme in 3D DDA; Coupling fluid flow with discontinuous deformation analysis; Numerical simulation of landslide turning into debris flows using discontinuous deformation analysis method; DDA simulations for slope failure/collapse experiment caused by torrential rainfall; Using natural-neighbor-interpolation-based DDA method for elasto-plastic analysis of discrete block system
 A numerical study of the significance of joint roughness in discontinuum modelling
 History of road construction with discontinuous analysis in Japan; Nonreflecting boundaries for the discontinuous deformation analysis; Studies on rock fall problems by three dimensional discontinuous deformation analysis; Anchorage effect on fractured rock and cavern stability analysis using DDA method; Masonry retaining wall under static load using discontinuous deformation analysis; Development of graphic user interface for Discontinues Deformation Analysis (DDA)
 On the implementation of augmented lagrangian method in the 2D discontinuous deformation analysis
 The method of slope modelling for rockfall analysis using 3D DDA; Key block theory, block cutting and applications; Generation of three-dimensional rock mass geometrical model; An efficient block detection algorithm in 3D-DDA; Block identification algorithm for complex free planes; Stability analysis of determined blocks in the underground powerhouse of guandi hydropower station; Modeling method for complex key block based on Nef polyhedra
 Three-dimensional block cutting and its some applications to rock engineering
 Numerical manifold method and further developments; Application of manifold method to punch loading tests for polymer bonded explosives; Study for reinforcement planning of masonry structure with cracks at Bayon main tower, Angkor; Accelerating contact detection using spatial hashing for Numerical Manifold Method; Research on solving geometric nonlinear problems with fixed triangular meshes; An introduction of Particle Manifold Method (PMM); Simulation of seepage in porous medium by Numerical Manifold Method
 Research on 3 dimension manifold method and its application

Sommario/riassunto

Rocks and soils can behave as discontinuous materials, both physically and mechanically, and for such discontinuous nature and behaviour there remain challenges in numerical modelling methods and techniques. Some of the main discontinuum based numerical methods, for example the distinct element method (DEM) and the discontinuous deformation analysis (DDA), are associated with geomechanics and geoengineering. Discontinuous numerical methods have been widely applied in geoengineering related to civil, mining, hydropower and petroleum engineering. There are many good examples of the use of UD