



**Bifurcations, Instabilities, Degradation in Geomechanics**

Exadaktylos, George E.; Vardoulakis, Ioannis G. (Eds.)  
2007, XVI, 470 p. 230 illus., Hardcover  
ISBN: 978-3-540-49341-9

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## About this book

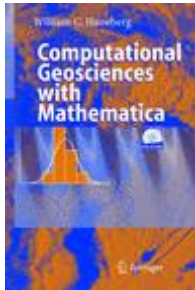
Leading international researchers and practitioners of bifurcations and instabilities in geomechanics debate the developments and applications which have occurred over the last few decades. The topics covered include modeling of bifurcation, structural failure of geomaterials and geostructures, advanced analytical, numerical and experimental techniques, and application and development of generalised continuum models etc. In addition analytical solutions, numerical methods, experimental techniques, and case histories are presented. Beside fundamental research findings, applications in geotechnical, petroleum, mining, and bulk materials engineering are emphasised.

**Written for:**

Scientists, researchers, libraries, graduate students, lecturers

**Keywords:**

bifurcation  
geomechanics  
instabilities



**Computational Geosciences with Mathematica**  
Haneberg, William C.  
2004, XIII, 381 p. 297 illus., Hardcover  
ISBN: 978-3-540-40245-9

About this textbook

## About this textbook

**Computational Geosciences with Mathematica** is the only book written by a geologist specifically to show geologists and geoscientists how to use Mathematica to formulate and solve problems. It spans a broad range of geologic and mathematical topics, which are drawn from the author's extensive experience in research, consulting, and teaching. The reference and text leads readers step-by-step through geologic applications such as custom graphics programming, data input and output, linear and differential equations, linear and nonlinear regression, Monte Carlo simulation, time series and image analysis, and the visualization and analysis of geologic surfaces. It is packed with actual Mathematica output and includes boxed Computer Notes with tips and exploration suggestions. The accompanying CD-ROM contains notebooks of all text and graphics, plus an appendix on color graphics and specialised functions.

**Written for:**

Graduate students and scientists in the fields of geophysics, hydrology, civil or geological engineering

**Keywords:**

Computational Geology  
Custom Graphics Programming  
Geology  
Mathematica  
Mathematical Geology

# Effect of Geomechanics on Mine Design

Editor(s) - J. Dubinski, A. Kidybinksi

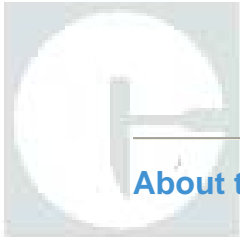
**ISBN:** 9789054100409

**ISBN-10:** 9054100400

**Publisher:** Taylor and Francis

**Publication Date:** 01/01/1992

**Pages:** 184



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## About the Title

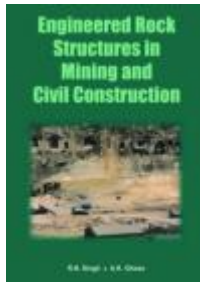
A selection of papers on the effect of geomechanics on mine design. Coverage includes geodynamic phenomena associated with mining, longwall face technology, permanent mine workings and tunnels, ground subsidence, yield pillars and water inflows to mines.

COLEGIO DE INGENIEROS DE MINAS,

MEXICO A.C.

## Engineered Rock Structures in Mining and Civil Construction

**Author(s)** - Raghu N Singh, Ajoy K Ghose



**List Price:** \$199.95

**ISBN:** 9780415400138

**ISBN-10:** 0415400139

**Publisher:** Taylor and Francis

**Publication Date:** 01/26/2006

**Pages:** 536



### About the Title

The book collates and sifts a vast amount of literature on the design of structures in the mining and construction industries to synthesize a comprehensive text on the subject area. The focus is on the application of theory to practice and the book is richly illustrated with worked out examples. The presentation is lucid and based on the extensive professional, teaching and research experience of the authors. The text seeks to address the key issues of design of 'engineered' structures in or on rock. The book will serve as a standard text for undergraduate courses in mining, civil engineering and engineering geology.

## ENGINEERING GEOLOGY



Second Edition

**By**  
**F G Bell**, Formerly University of Natal, South Africa

### **Description**

Every engineering structure, whether it's a building, bridge or road, is affected by the ground on which it is built. Geology is of fundamental importance when deciding on the location and design of all engineering works, and it is essential that engineers have a basic knowledge of the subject. Engineering Geology introduces the fundamentals of the discipline and ensures that engineers have a clear understanding of the processes at work, and how they will impact on what is to be built. Core areas such as stratigraphy, rock types, structures and geological processes are explained, and put in context. The basics of soil mechanics and the links between groundwater conditions and underlying geology are introduced. As well as the theoretical knowledge necessary, Professor Bell introduces the techniques that engineers will need to learn about and understand the geological conditions in which they intend to build. Site investigation techniques are detailed, and the risks and risk avoidance methods for dealing with different conditions are explained.

### **Audience**

Civil engineering, structural engineering, mining, water engineering students at undergraduate and post-graduate level. Professionals in the same disciplines.

### **Contents**

Rock types & stratigraphy; Geological structures; Surface processes; Groundwater conditions & supply; Description, properties & behaviours of soils & rocks; Geological materials used in construction; Site investigation; Geology, planning & development; Geology & construction

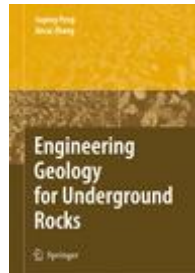
### **Bibliographic & ordering Information**

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ISBN-13: 978-0-7506-8077-6  
ISBN-10: 0-7506-8077-6  
Imprint: BUTTERWORTH HEINEMANN



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CENTRO FEDERAL DE EDUCACIÓN TECNOLÓGICA DE MINAS GERAIS  
MEXICO A.C.



**Engineering Geology for  
Underground Rocks**  
Peng, Suping, Zhang, Jincai  
2007, XX, 320 p. 191 illus., Hardcover  
ISBN: 978-3-540-73294-5

About this book

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## About this book

Engineering geology for underground rocks is a sub-discipline of engineering geology that is used to describe and solve geological engineering problems encountered in underground mining, petroleum and civil engineering.

It covers rock mechanics for underground rocks, rock hydraulics, wellbore mechanics, mine geology and mine hydrogeology.

This book clearly and systematically explains underground engineering geology principles, methods, theories and case studies.

It goes on to lay out some knotty engineering problems in underground rock engineering and then shows the reader how to solve them.

The book specially emphasizes mechanical and hydraulic couplings in rock engineering for wellbore stability, mining near aquifers and other underground structures where inflow is a problem.

Using the methods and models given in this book, the reader is able to analyze underground geological engineering problems. He or she will also find that the work is an invaluable aid in the design of underground structures.

**Written for:**

Libraries, researchers, institutes, scientists

**Keywords:**

Engineering Geology  
Geological Engineering  
Geotechnics  
Mining engineering  
Rock mechanics

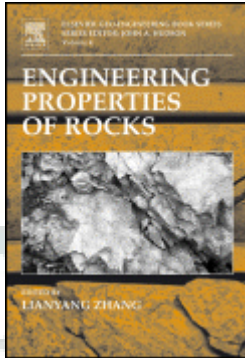


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METALURGISTAS Y GEÓLOGOS DE  
MÉXICO A.C.

## ENGINEERING PROPERTIES OF ROCKS, 4

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**By**  
**Lianyang Zhang**, Professor Lianyang Zhang IFC Consulting MA, USA

**Audience**

Practising civil engineers working in rock, whether undertaking site investigations or for design, excavation, etc;  
Researchers and post-graduate students wanting to gain practical knowledge in the field of rock mechanics.

**Bibliographic & ordering Information**

Hardbound, 208 pages, publication date: NOV-2005  
ISBN-13: 978-0-08-044672-1  
ISBN-10: 0-08-044672-8  
Imprint: ELSEVIER



**Flood Risk Management in Europe**  
Innovation in Policy and Practice

Series: **Advances in Natural and Technological Hazards Research**, Vol. 25

Begum, Selina; Stive, Marcel J.F.; Hall, Jim W. (Eds.)  
2007, XVI, 534 p. 164 illus., 14 in color.,  
Hardcover  
ISBN: 978-1-4020-4199-0



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METALURGISTAS Y GEÓLOGOS DE

About this book

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## About this book

In recent years major floods have occurred across Europe causing serious damages and huge financial implications. Flood risk and vulnerability is increasing with increased frequency of occurrence of extreme events due to climate change, changes in land-use, encroachment into floodplains and increasing economic value of assets and businesses. Human lives, property, environment and socio-economics are at increasing risk due to flooding. Recent alarming events in Central Europe, UK and The Netherlands have provided renewed impetus to the development of improved policies and techniques for flood risk management across Europe. Sharing of knowledge and understanding of the practical problems, dilemmas and challenges will aid in the development and implementation of new technologies and strategies of the challenging issues of flood risk management in Europe.

This valuable edition brings together 26 peer reviewed articles on technical, socio-economic, environmental and policy aspects of flood risk management. These articles contribute to the five sections with the general themes: i) flood risk management practice, ii) flood events and impacts, iii) flood analysis and modelling iv) flood forecasting and v) flood risk management policy. Some emerging technologies are presented and several future challenges are identified.

### *Audience*

This book will be of interest to engineers, scientists, planners, policy-makers, researchers, insurance industry and all the practitioners involved in flood risk management, and its sub-disciplines in engineering, hydrology, environmental studies, coastal management, economics and public policy.

### **Written for:**

Scientists, graduates and all practitioners involved in Flood Risk Management and Flooding, engineers, policy makers and planners, academic libraries

### **Keywords:**

Environment  
Europe  
Flood forecasting  
Flood hazard  
Flood modelling  
Flood risk  
Hydrology



**Progress in Landslide Science**

Sassa, K.; Fukuoka, H.; Wang, F.; Wang, G.  
(Eds.)  
2007, XVII, 378 p. 300 illus., 250 in color.,  
Hardcover  
ISBN: 978-3-540-70964-0

About this book

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## About this book

This book presents current progress in landslide science and consists of four parts: progress in landslide science, landslide dynamics, landslide monitoring, and landslide risk assessment. It provides useful information to academics, practitioners, and government officers working on landslide risk-mitigation planning. This book can be also used as an introductory textbook for college students who wish to learn fundamental scientific achievements in the field of landslide disaster reduction.

**Written for:**

Scientists, researchers, practitioners; libraries; lecturers, graduates

**Keywords:**

- Landslides
- cultural heritage
- risk analysis
- sustainable disaster management



**Rock Damage and Fluid Transport, Part I**

Series: **Pageoph Topical Volumes**

Volume package **Rock Damage and Fluid Transport**

Dresen, Georg; Stephansson, Ove; Zang, Arno (Eds.)

2006, 278 p. 147 illus., Softcover

ISBN: 978-3-7643-7711-3

A Birkhäuser book

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## About this book

Mechanical properties and fluid transport in rocks are intimately linked as deformation of a solid rock matrix immediately affects the pore space and permeability. This may result in transient or permanent changes of pore pressures and effective pressures causing rock strength to vary in space and time. Fluid circulation and deformation processes in crustal rocks are coupled, producing significant complexity of mechanical and fluid transport behavior. This often poses severe technical and economic problems for reservoir and geotechnical engineering projects involved in oil and gas production, CO<sub>2</sub> sequestration, mining and underground waste disposal. For example, the depletion of hydrocarbon and water reservoirs leading to compaction may have adverse effects on well production. Solution/precipitation processes modify porosity and affect permeability of aquifers and reservoir rocks. Fracture damage from underground excavation will critically influence the long-term stability and performance of waste storage.

Part I of this topical volume covers mainly the nucleation and evolution of crack damage in rocks, new or modified techniques to measure rock fracture toughness and a discussion of upscaling techniques relating mechanical and fluid transport behaviour in rocks at different spatial scales.

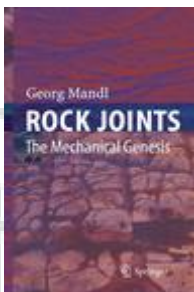
Part II, to be published later in 2006, will include studies investigating the coupling of rock deformation and fluid flow.

**Written for:**

Geoscientists

**Keywords:**

excavation  
oil production  
pore space  
rock damage  
well production



**Rock Joints**  
The Mechanical Genesis  
**Mandl, Georg**  
2005, VIII, 222 p. 153 illus., Hardcover  
ISBN: 978-3-540-24553-7

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## About this book

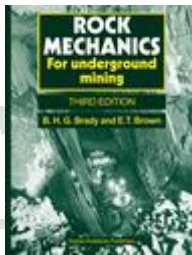
**Rock Joints** deals exclusively with the mechanical genesis of joints in rocks. It is aimed at a coherent, critical and comprehensible presentation of the underlying mechanical processes of various types of joints and joint systems. Special care is taken to elucidate and quantify the role of high fluid pressures in the formation of joints. The background is an offshoot of the author's courses on "Genesis of Rock Joints" in the Department of Rock Mechanics and Tunneling at the Technical University of Graz, Austria.

**Written for:**

Engineers and geologists specialized in rock mechanics, rock engineering and engineering geology

**Keywords:**

Hydraulic Intrusion  
Tectonophysics  
Tension Fractures



**Rock Mechanics**  
For underground mining  
**Brady, B.H.G., Brown, E.T.**  
3rd ed., 2004, XVIII, 626 p., Softcover  
ISBN: 978-1-4020-2064-3

About this textbook

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## About this textbook

Although **Rock Mechanics** addresses many of the rock mechanics issues which arise in underground mining engineering, it is not a text exclusively for mining applications. It consists of five categories of topics on the science and practice of rock engineering: basic engineering principles relevant to rock mechanics; mechanical properties of rock and rock masses; design of underground excavations in various rock mass conditions; mining methods and their implementation; and guidelines on rock mechanics practice. Throughout the text, and particularly in those sections concerned with excavation design and design of mining layouts, reference is made to computational methods of analysis of stress and displacement in a rock mass. The principles of various computational schemes, such as boundary element, finite element and distinct element methods, are considered. This new edition has been completely revised to reflect the notable innovations in mining engineering and the remarkable developments in the science of rock mechanics and the practice of rock engineering that have taken place over the last two decades.

Based on extensive professional, research and teaching experience, this book will provide an authoritative and comprehensive text for final year undergraduates and commencing postgraduate students. For professional practitioners, not only will it be of interest to mining and geological engineers but also to civil engineers, structural and mining geologists and geophysicists as a standard work for professional reference purposes.

B.H.G. Brady is Emeritus Professor and former Dean of the Faculty of Engineering, Computing and Mathematics at The University of Western Australia, and a consulting rock mechanics engineer.

E.T. Brown is Senior Consultant, Golder Associates Pty Ltd, Brisbane, Australia and formerly Senior Deputy Vice-Chancellor of The University of Queensland, Australia.

### Written for:

Professional practitioners, mining and geological engineers, geotechnical engineers, civil engineers, structural and mining geologists and geophysicists

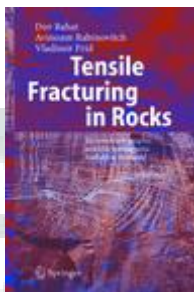
Advanced undergraduate and graduate students of civil and geotechnical engineering and geology

### Keywords:

engineering geology  
geotechnical engineering  
mining  
rock mechanics  
structural geology  
tunneling

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A.C.



**Tensile Fracturing in Rocks**

Tectonofractographic and Electromagnetic Radiation Methods

**Bahat, Dov, Rabinovitch, Avinoam, Frid, Vladimir**

2005, XIV, 570 p. 302 illus., Hardcover  
ISBN: 978-3-540-21456-4

[About this book](#)

[Sample pages](#)

## About this book

Understanding tensile fracture in rocks provides an important key for the interpretation of many problems in structural geology. This book presents a multidisciplinary approach to tensile fracture in rocks (faulting is briefly addressed), starting with an introduction to fracture physics and progressing through tectonofractographic features, characterized both in experimental settings and in geological outcrops. Four examples of sedimentary rocks and two of granites have been chosen to demonstrate the principles and problems in fracture geology. Principles of fracture mechanics and rock mechanics are applied throughout the book, which also explores current understanding about electromagnetic radiation induced by fractures and how such radiation can be used to monitor and predict earthquakes and hazardous collapses in mines. The monograph serves not only as a manual on how to handle specific problems and their solutions in fractural geology but also as a starting point for researchers and graduate students interested in the field of rock fracturing.

**Written for:**

Graduate students and researchers

**Keywords:**

- Electromagnetic radiation
- Fracture geology
- Fracture physics
- Joint fracture provinces
- Rock fractures
- Sedimentary rocks
- Tectonofractography



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