

1. Record Nr.	UNINA9910825594903321
Autore	Puzrin Alexander
Titolo	Constitutive Modelling in Geomechanics [[electronic resource]] : Introduction // by Alexander Puzrin
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2012
ISBN	1-280-39777-2 3-642-27395-5 9786613575692
Edizione	[1st ed. 2012.]
Descrizione fisica	1 online resource (306 p.)
Disciplina	620 620.1 620.11 624.15
Soggetti	Engineering geology Engineering—Geology Foundations Hydraulics Mechanics Mechanics, Applied Geotechnical engineering Materials science Structural materials Geoengineering, Foundations, Hydraulics Solid Mechanics Geotechnical Engineering & Applied Earth Sciences Characterization and Evaluation of Materials Structural Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Part I Introduction to Continuum Mechanics -- Part II Constitutive modelling of reversible soil behavior -- Part III Constitutive modelling

of irreversible soil behavior -- Appendices.

Sommario/riassunto

The purpose of this book is to bridge the gap between the traditional Geomechanics and Numerical Geotechnical Modelling with applications in science and practice. Geomechanics is rarely taught within the rigorous context of Continuum Mechanics and Thermodynamics, while when it comes to Numerical Modelling, commercially available finite elements or finite differences software utilize constitutive relationships within the rigorous framework. As a result, young scientists and engineers have to learn the challenging subject of constitutive modelling from a program manual and often end up with using unrealistic models which violate the Laws of Thermodynamics. The book is introductory, by no means does it claim any completeness and state of the art in such a dynamically developing field as numerical and constitutive modelling of soils. The author gives basic understanding of conventional continuum mechanics approaches to constitutive modelling, which can serve as a foundation for exploring more advanced theories. A considerable effort has been invested here into the clarity and brevity of the presentation. A special feature of this book is in exploring thermomechanical consistency of all presented constitutive models in a simple and systematic manner.
