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Titolo	Continuous and Discontinuous Modelling of Cohesive-Frictional Materials // edited by P.A. Vermeer, S. Diebels, W. Ehlers, H.J. Herrmann, S. Luding, E. Ramm
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Descrizione fisica	1 online resource (XIV, 310 p.)
Collana	Lecture Notes in Physics, , 0075-8450 ; ; 568
Disciplina	620.1/1292
Soggetti	Mechanics Condensed matter Materials science Earth sciences Mechanics, Applied Classical Mechanics Condensed Matter Physics Characterization and Evaluation of Materials Earth Sciences, general Theoretical and Applied Mechanics
Lingua di pubblicazione	Inglese
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Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Computational models for failure in cohesive-frictional materials with stochastically distributed imperfections -- Modeling of localized damage and fracture in quasibrittle materials -- Microplane modelling and particle modelling of cohesive-frictional materials -- Short-term creep of shotcrete - thermochemoplastic material modelling and nonlinear analysis of a laboratory test and of a NATM excavation by the Finite Element Method -- Thermo-poro-mechanics of rapid fault shearing -- A view on the variational setting of micropolar continua -- Macromodelling of softening in non-cohesive soils -- An experimental investigation of the relationships between grain size distribution and shear banding in sand -- Micromechanics of the elastic behaviour of granular materials -- On sticky-sphere assemblies -- Cohesive

granular texture -- Micro-mechanisms of deformation in granular materials: experiments and numerical results -- Scaling properties of granular materials -- Discrete and continuum modelling of granular materials -- Difficulties and limitation of statistical homogenization in granular materials -- From discontinuous models towards a continuum description -- From solids to granulates - Discrete element simulations of fracture and fragmentation processes in geomaterials -- Microscopic modelling of granular materials taking into account particle rotations -- Microstructured materials: local constitutive equation with internal length, theoretical and numerical studies -- Damage in a composite material under combined mechanical and hygral load.

Sommario/riassunto

A knowledge of the mechanical behaviour of both naturally occurring materials, such as soils and rocks, and artificial materials such as concrete and industrial granular matter, is of fundamental importance to their proper use in engineering and scientific applications. This volume contains selected lectures by international experts on current developments and problems in the numerical modelling of cohesive-frictional materials which provide a deeper understanding of the microscopic and macroscopic description of such materials. This book fills a gap by emphasizing the cross-fertilization of ideas between engineers and scientists engaged in this exciting field of research.
