1. Record Nr. UNINA9910383836903321

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Titolo	Computational Granular Mechanics and Its Engineering Applications / / by Shunying Ji, Lu Liu
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2020
ISBN	981-15-3304-0
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XVII, 387 p. 334 illus., 254 illus. in color.)
Collana	Springer Tracts in Mechanical Engineering, , 2195-9870
Disciplina	620.43
Soggetti	Mechanics, Applied Physics Offshore structures Engineering Mechanics Classical and Continuum Physics Offshore Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Generation of Irregular Shaped Particle Elements -- Micro Contact Model of Granular Materials -- Macro-micro Analysis of Granular Materials -- DEM-FEM Coupling Analysis of Granular Materials -- Fluid-Solid Coupling Analysis of Granular Materials -- High Performance Algorithm, Computing and Analysis Software of DEM Based on GPU Parallel Technology -- DEM Analysis for Ice Loads on Ship and Offshore Structure -- DEM Analysis for Characteristics of Railway Ballast Bed -- DEM Analysis of Vibration Reduction and Buffering Capacity of Granular Material.
Sommario/riassunto	This book systematically introduces readers to computational granular mechanics and its relative engineering applications. Part I describes the fundamentals, such as the generation of irregular particle shapes, contact models, macro-micro theory, DEM-FEM coupling, and solid-fluid coupling of granular materials. It also discusses the theory behind various numerical methods developed in recent years. Further, it provides the GPU-based parallel algorithm to guide the programming of DEM and examines commercial and open-source codes and software for the analysis of granular materials. Part II focuses on engineering

applications, including the latest advances in sea-ice engineering, railway ballast dynamics, and lunar landers. It also presents a rational method of parameter calibration and thorough analyses of DEM simulations, which illustrate the capabilities of DEM. The computational mechanics method for granular materials can be applied widely in various engineering fields, such as rock and soil mechanics, ocean engineering and chemical process engineering.