

1. Record Nr.	UNINA9910678247003321
Autore	Zhang Sherong
Titolo	Dynamic Mechanical Behaviors and Constitutive Model of Roller Compacted Concrete // by Sherong Zhang, Xiaohua Wang, Chao Wang
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	981-19-8987-7
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (155 pages)
Collana	Hydroscience and Engineering, , 2730-9010
Disciplina	624.1834
Soggetti	Rock mechanics Soil mechanics Foundations Engineering geology Soil and Rock Mechanics Foundation Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Chapter 1 Constitutive Relation of RCC: An Overview -- Chapter 2 Experimental Research on Dynamic Behaviors of RCC -- Chapter 3 Dynamic Meso-mechanical Behaviors of RCC -- Chapter 4 Construction-induced Damage Effect on Dynamic Compressive Behaviors of RCC -- Chapter 5 Size-dependence of Dynamic Behaviors for RCC -- Chapter 6 Dynamic Compressive and Tensile Behaviors of Large-scaled Concrete Structure -- Chapter 7 Fragmentation-based Dynamic Size Effect of RCC Under Impact Loadings -- Chapter 8 Dynamic Constitutive Model of RCC for Fully Graded Dam Concrete.
Sommario/riassunto	This book systematically illustrates the dynamic mechanical behaviors and discusses the fundamentals of the constitutive modeling of roller-compacted concrete (RCC), influenced by the construction technique and mix design. Four typical problems are analyzed using laboratory tests, numerical simulation and theoretical analysis, i.e., to illustrate the special dynamic mechanical behaviors of RCC, to reveal the dynamic size-dependence of mechanical properties, to discuss the aggregate size effect on dynamic mechanical properties, and to modify the dynamic constitutive model for RCC. Generally, the constitutive

modeling of RCC needs a comprehensive understanding of dynamic size-dependence and aggregate size effect of concrete that coupled with the strain-rate sensitivity. So that, readers can master the modified dynamic constitutive model of RCC to analyze and solve the problems in blast-resistance analysis and protective design of RCC dams. This book can be used as a postgraduatetextbook for civil and hydraulic engineering in colleges and universities, and as an elective course for senior undergraduates. It can also be used as a reference for relevant professional scientific researchers and engineers in field of protective design of concrete structures.
