1. Record Nr. UNINA9910484228703321

Autore	Wang Gaohui
Titolo	Seismic Performance Analysis of Concrete Gravity Dams / / by Gaohui Wang, Wenbo Lu, Sherong Zhang
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2021
ISBN	981-15-6194-X
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XVIII, 268 p.) : 166 illus., 127 illus. in color
Collana	Advanced Topics in Science and Technology in China, , 1995-6827 ; ; 57
Disciplina	627.82
Soggetti	Multibody systems Vibration Mechanics, Applied Engineering geology Fire prevention Buildings - Protection Natural disasters Computer-aided engineering Numerical analysis Multibody Systems and Mechanical Vibrations Geoengineering Fire Science, Hazard Control, Building Safety Natural Hazards Computer-Aided Engineering (CAD, CAE) and Design Numerical Analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Comparative analysis of nonlinear seismic response of concrete gravity dams using XFEM and CDP model -- Seismic cracking analysis of concrete gravity dams with initial cracks using XFEM -- Seismic potential failure mode analysis of concrete gravity dam–water–foundation systems through incremental dynamic analysis -- Correlation between single component durations and damage measures of concrete gravity dams -- Integrated duration effects on seismic

performance of concrete gravity dams -- Damage demand assessment of concrete gravity dams subjected to mainshock-aftershock seismic sequences -- Earthquake direction effects on nonlinear dynamic response of concrete gravity dams to seismic sequences -- Seismic performance evaluation of dam-reservoir-foundation systems to near-fault ground motions -- Deterministic 3D seismic damage analysis of Guandi concrete gravity dam: A case study.

Sommario/riassunto

This book evaluates the seismic performance of concrete gravity dams, considering the effects of strong motion duration, mainshock-aftershock seismic sequence, and near-fault ground motion. It employs both the extended finite element method (XFEM) and concrete damaged plasticity (CDP) models to characterize the mechanical behavior of concrete gravity dams under strong ground motions, including the dam-reservoir-foundation interaction. In addition, it discusses the effects of the initial crack, earthquake direction, and cross-stream seismic excitation on the nonlinear dynamic response to strong ground motions, and on the damage-cracking risk of concrete gravity dams. This book provides a theoretical basis for the seismic performance evaluation of high dams, and can also be used as a reference resource for researchers and graduate students engaged in the seismic design of high dams.