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Autore	Wang Rui
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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Unified plasticity model for large post-liquefaction shear deformation of sand and its numerical implementation -- Seismic response analysis of single piles in liquefiable ground -- Downdrag analysis of single piles in post-liquefaction reconsolidating ground -- Conclusions.
Sommario/riassunto	This thesis focuses on seismic response of piles in liquefiable ground. A three-dimensional unified plasticity model for large post-liquefaction shear deformation of sand was formulated and implemented for parallel computing, based on which a three dimensional dynamic finite element analysis method for piles in liquefiable ground was developed. Through a combination of case analysis, centrifuge shaking table experiments and numerical simulations using the proposed methods, the seismic response patterns of single piles in liquefiable ground were revealed, including: basic force-resistance mode, kinematic and inertial interaction coupling mechanism and major influence factors. A beam

on nonlinear Winkler foundation (BNWF) solution and a modified neutral plane solution were developed and validated against centrifuge experiments for piles in consolidating and reconsolidating ground. The axial pile force and settlement during post-earthquake reconsolidation was studied, showing pile axial force to be irrelevant of the reconsolidation process while settlement to be process dependent.