



# Holistic Simulation of Geotechnical Installation Processes : Theoretical Results and Applications /

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Monografía

This book provides recent developments and improvements in the modeling as well as application examples and is a complementary work to the previous Lecture Notes Vols. 77 and 80. It summarizes the fundamental work from scientists dealing with the development of constitutive models for soils, especially cyclic loading with special attention to the numerical implementation. In this volume the neo-hypoplasticity and the ISA (intergranular strain anisotropy) model in their extended version are presented. Furthermore, new contact elements with non-linear constitutive material laws and examples for their applications are given. Comparisons between the experimental and the numerical results show the effectiveness and the drawbacks and provide a useful and comprehensive pool for all the constitutive model developers and scientists in geotechnical engineering, who like to prove the soundness of new approaches

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**Contenido:** Adaptive management evaluation of the SQBRC excavation -- Stress paths on displacement piles during monotonic and cyclic penetration -- Contribution to the non-Lagrangian formulation of geotechnical and geomechanical processes -- Experimental investigation of vibratory pile driving in saturated sand -- FE simulation of model tests on vibratory pile driving in saturated sand. - Some aspects of the boundary value problems for the cyclic deformation of soil -- Computer aided calibration, benchmarking and check-up of constitutive models for soils -- Simulation of cyclic loading conditions within fluid-saturated granular media -- Strategies to apply soil

models directly as friction laws in soil structure interactions -- A zero elastic range hypoplasticity model for sand --  
Cyclic response of natural onsoy clay -- Numerical investigations of the effects of dynamic construction processes  
on deep excavation walls -- Total and quasi-elastic strains due to monotonous and low-cycle loading by means of  
experimental and numerical element tests -- Constitutive model for viscous clays under the ISA framework --  
Evaluating the performance of an ISA-hypoplasticity constitutive model on problems with repetitive loading

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