## Contents

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamental Behavior and Constitutive Model of Geomaterials</td>
<td></td>
</tr>
<tr>
<td><strong>Compaction Characteristics of Aeolian Sand with Different Sediment Percentage</strong></td>
<td>3</td>
</tr>
<tr>
<td>Xiu-kun Dong and Li-ying Liu</td>
<td></td>
</tr>
<tr>
<td><strong>Dynamic Effect in Capillary Pressure – Saturation Relationship Using Lattice Boltzmann Simulation</strong></td>
<td>8</td>
</tr>
<tr>
<td>Guanxi Yan, Zi Li, Thierry Bore, Sergio Galindo-Torres, Alexander Scheuermann, and Ling Li</td>
<td></td>
</tr>
<tr>
<td><strong>Effect of Water Content on the Strength of Bio-Cemented Sand in Various Drying Process</strong></td>
<td>23</td>
</tr>
<tr>
<td>Chen Zeng, Jun-jie Zheng, Ming-juan Cui, and Xiang-chuan Yao</td>
<td></td>
</tr>
<tr>
<td><strong>Electro-Osmotic Chemical Treatment of Marine Clayey Soil Using CaCl₂ Solution</strong></td>
<td>36</td>
</tr>
<tr>
<td>Lei Zhang, Liping Jing, Ningwei Wang, Chen Fang, Zhendong Shan, and Yongqiang Li</td>
<td></td>
</tr>
<tr>
<td><strong>Experimental Study of Fiber-Reinforced Sand Subject to Seepage</strong></td>
<td>49</td>
</tr>
<tr>
<td>K.-H. Yang, W.M. Adilehou, S.-T. Jian, and B.-C. Hsiung</td>
<td></td>
</tr>
<tr>
<td><strong>One Dimensional Consolidation Theory Considering the Strain Rate Effect</strong></td>
<td>63</td>
</tr>
<tr>
<td>Quan Liu, Yue-bao Deng, Fei Chen, and Sen-jie Tong</td>
<td></td>
</tr>
<tr>
<td><strong>Statistical Damage Constitutive Model for Warm Frozen Clay Considering Effect of Damage Threshold</strong></td>
<td>77</td>
</tr>
<tr>
<td>Hongfa Xu, Hanzheng Geng, Xiao Chen, and Zhun Bai</td>
<td></td>
</tr>
</tbody>
</table>
Excavation and Slope Engineering

A Simplified Expression for Ground Movements Induced by Excavations in Soft Clay ........................................ 93
Fuchen Teng

A Three-Dimensional Axisymmetric Arc Sliding Method for Checking Basal Heave Stability of Circular Foundation Pits ...... 116
Ming-ju Zhang, Zhen-bo Zhang, and Meng Yang

Analysis of Sand Boiling Failure in Deep Excavations ............... 125
Ignatius Tommy Pratama and Chang-Yu Ou

Case Record of a Strut-free Excavation with Buttress Walls in Soft Soil ................................................................. 142
Aswin Lim and Chang-Yu Ou

Characterization of Barrier Effect of Underground Wall in Pumping Tests ...................................................... 155
Mingfei Zhang and Liyuan Tong

Comparison of Analytical and Numerical Analysis Results of Deep Excavation for Nhon – Hanoi Urban Railway Project in Hanoi, Vietnam .................................................... 164
Nguyen Chau Lan and Truong Quang Manh

Consideration of the Pile-Soil Friction for Earth Pressure of Limited Soil for Double-Row Piles .............................. 174
A. Yi-jun Zhou, B. Ai-jun Yao, and C. Gang Lei

Different Methods of Excavation for Basement in Jakarta: Design, Reality and Associated Problems .................. 184
Paulus P. Rahardjo

Evaluation of Performance of Walls in Deep Excavations Using Wall Deflection Paths ........................................ 204
R. Hwang and L.W. Wong

Influence of Excavation Construction on Adjacent Existing Retaining Structure .................................................. 223
Chen Xiaoyu, Hu Minyun, Zhang Yong, and Yuan Jing

In-situ Experimental Investigation on Pullout Performances and Horizontal Bearing Properties of Bored Piles .............. 234
Linze Shi and Changguang Qi

On Methods of Estimating the Base Stability of Excavations in Clay ................................................................. 248
T.N. Do
Railway Underground Adjacent Construction and Design Issues in Soft Soil of Taipei Urban Area ............................................ 258
Chung-Ren Huang, Jimmy Chen, Wen-Jen Chang, Tai-Shen Pan, Chen-Yuan Liao, and Chung-Yi Tsai

Reliability-Based Design of Basal Heave Stability for Braced Excavation Using Three Different Methods ......................................... 273
Wan-Huan Zhou, Yu Mu, Xiao-Hui Qi, and Shuaidong Yang

Risk Assessment of Slope Accounting for the Cross-Correlation of Soil Properties ...................................................... 284
Hong-zhan Cheng and Jian Chen

Tunnel and Underground Engineering

A Study on the Influence of Water Layer on the Seismic Response of Immersed Tunnel ................................................................. 299
X. Cheng, L. Jing, J. Cui, Y. Li, R. Dong, and G. Wang

An Empirical Estimation of Settlement-Time Relationship Due to Shield Tunneling in Gravelly Soils ......................................................... 310
Yung-Show Fang, Lin-Yao Kuo, Chuo-Ming Lin, and Ying-Chu Shih

Application of Horizontal MJS Piles in Tunneling Beneath Existing Twin Tunnels ................................................................. 323
Pin Zhang, Yuan Liu, Xin Kang, Ke Zhong, and Renpeng Chen

Evaluate the Impact on Adjacent MRT Station from Shield Tunneling by Numerical Analysis and Risk Management – Taking Taipei MRT Circular Line for Example ..................................................... 332
Chen-Wei Hung, Chien-Ming Lai, and Fu-Lai Su

Shield Tunneling in Gravels – Difficulties and Resolutions ............... 346
J.F. Chang, C.R. Chou, Y.F. Lai, and Y.H. Hsieh

Three Dimension Seepage Flow Numerical Modeling of Slurry Shield with the Permeable Filter Cake .................................................. 358
Xinsheng Yin, Fanyan Meng, and Renpeng Chen

Foundation and Foundation Treatment

A Load Transfer Approach for Studying the Load-Deformation Response of Vertically Loaded Single Pile .................................................. 369
Qingyuan Lu and Qiang Luo

A Nonlinear Calculation Approach of Long-Term Settlement for Pile Groups in Layered Soft Soils .................................................. 385
Shengyang Feng, Suhua Zhou, Hongquan Li, and Limin Wei
Calibrating Resistance Factor and Factor of Safety of Driven Piles Considering Set-up Effects ................................................. 401
X.Y. Bian, X.Y. Chen, H.L. Lu, and J.J. Zheng

Deformation Behavior of Geocell Reinforced Granular Cushion Over Soft Soil with Stone Columns ........................................ 412
Ling Zhang, Qiang Ou, and Minghua Zhao

Investigation of Mechanical Behavior of Foundations Over Unsaturated Sands Reinforced by Stone Columns Using Artificial Neural Networks .................................................. 425
S. Hashemi and A. Fotovvat

One Dimensional Consolidation of Composite Foundation in Multilayered System ......................................................... 436
J. Jun, Y. Minghui, and Z. Xinjun

Performance of Raft Foundation for a High-Rise Building ............ 453
Kheng-Boon Chin, Yoshikatsu Ogawa, and Peng-Boon Ng

The Application of Large-Scale Caisson in Anchorage Foundation for Suspension Bridge in China ....................................... 468
Zheng-zhen Wang, Wei-ming Gong, and Guo-liang Dai

Environmental Geotechnical Engineering

Si-qing Nie, Xin-jun Zou, and Qiong He

Digital Survey for Retaining Walls - Using Commercial Cameras as Instrument ................................................................. 497

Effect of Foreshocks of the 2016 Kumamoto Earthquakes on the Aso-Bridge Slope ............................................................... 511
C. Hung, B.-C.B. Hsiung, K.-H. Yang, and L. Ge

Field Measurements and Numerical Analyses of a Pumping-Recharge Test in a Deep Confined Aquifer ................................ 518
Yangqiong Zhang, Mingguang Li, and Jianhua Wang

Synthesis and Characterization of Metakaolin Modified Waste Concrete-Based Geopolymer .............................................. 530
Wu Chen and Zhiduo Zhu
Numerical Methods in Geotechnical Engineering

Deformation and Failure Behavior of the Isolated Single Stone Column with and Without Geosynthetic Encasement .................. 547
Xin Tan and Minghua Zhao

Numerical Analysis on Strut Responses Due to One-Strut Failure for Braced Excavation in Clays ........................................... 560
A.T.C. Goh, Zhang Fan, Liu Hanlong, Zhang Wengang, and Zhou Dong

Numerical Simulation on the Development of Soil Arching Induced by EPBS Tunnelling .................................................. 575
Xingtao Lin, Yuan Liu, Xin Kang, Jun Chen, and Renpeng Chen

Analyses of Ground Response Induced by Diaphragm Wall Installation ................................................................. 583
A.-J. Li and H.-D. Lin

Research on Flow Push Pile Effect of Post-liquefied Sand Based on VOF Method ......................................................... 592
Enquan Zhou, Wen Yan, and Wang Qiong

Author Index ................................................................. 607

Keyword Index ............................................................... 609
Proceedings of the 2nd International Symposium on
Asia Urban GeoEngineering
Chen, R.; Zheng, G.; Ou, C. (Eds.)
2018, XVIII, 697 p. 432 illus., Hardcover