TABLE OF CONTENTS

PAVING MATERIALS CHARACTERIZATION AND MODELING

Laboratory Preparation and Microwave Heating Test of CIPs/Asphalt Binder ................................................................. 1
Zhenjun Wang, Sheng Wang, Tao Ai, Peng Zhao

Stone Matrix Asphalt Using Aggregates Modified with Waste Plastics ................................................................. 9
Gautham Sarang, B. M. Lekha, A. U. Ravi Shankar

Simulation of Aggregates Heating in Asphalt Plants ................................................................. 19
Haifang Wen, Kun Zhang

Effect of Cement on Palm Kernel Shell Ash Stabilized Reclaimed Asphalt Pavement as Highway Pavement Material ................................................................. 29
Joseph Ejelikwu Edeh, Thomas Okwor Ashanda, Kolawole Juwolou Otimbi

Comparison of Surface Energy Values of Limestone with respect to Different 3D Surface Roughness Measurements ................................................................. 39
Anjana Thoroppady Kittu, Rifat Bulut, Sandip Harimkar

Changes in Contact Angles on Miller Creek Granite with Different Grades of Polishing Grits ................................................................. 48
Suryadithya Rayudu, Rifat Bulut

Linear Viscoelastic domain for Bituminous Mixtures ................................................................. 59
Quang Tuan Nguyen, Herve Di Benedetto, Cedric Sansoulet

Infrastructure Sustainability: The Use of Recycled Asphalt Shingles in Flexible Pavements ................................................................. 69
Samuel B. Cooper Jr., Lousay N. Mohammad, Mustafa A. Elseifi

Rheological Characteristics of Nano-sized Hydrated Lime-Modified Foamed Warm Mix Asphalt ................................................................. 79
Aboelkasim Diab, Zhanping You

Evaluation of Sample Orientation in Flexural Stiffness and Temperature Induced Damage in Fatigue Life of Asphalt Concrete ................................................................. 90
Md. Rashadul Islam, Md. Tahmidur Rahman, Rafigul A. Tarefder

X-ray Tomography Based Microstructural Model for Multi-Physical Analyses of Concrete ................................................................. 100
Tongyan Pan, Stephen F. Lloyd

Experimental Study on the Water-sensitivities of Compacted Red Clay in Guangxi, China ................................................................. 109
Qingke Nie, Bing Bai

Effect of Hindered Amine Light Stabilizer on Rheological and Aging Properties of SBS Modified Asphalt ................................................................. 120
Zhengang Feng, Xinjun Li

Characterization of Elemental Transport from Fly Ash: A Column Study ................................................................. 131
Zhenwei Zhu, Qiang He

Laboratory Evaluation of Asphalt Cement and Mixture Modified by Bio-Char Produced through Fast Pyrolysis ................................................................. 140
Sheng Zhao, Baoshan Huang, Philip Ye

A Residual Thermal Stress Calculation of Asphalt based on a Coupled Viscoelastic Phase-field and Navier-Stokes System ................................................................. 150
Yue Hou, Linbing Wang, Wenjuan Sun

PAVEMENT EVALUATION, ANALYSIS, AND CONSTRUCTION

Mechanistic-Empirical Model to characterize rutting in unpaved road with a shallowly buried SRHDPE pipe ................................................................. 157
Zhigang Cao, Jie Han, Deep K. Khatri, Yuanqiang Cai

Premature Pavement Distresses of Cracks and Rutting Analysis and Mechanical Analysis in Ultra-Thin Asphalt Pavement ................................................................. 167
Tingting Su, Runhua Guo, Xiaobing Qiao, Jian Liu

Shakedown of Layered Pavements under Repeated Moving Loads ................................................................. 179
Shu Liu, Juan Wang, Hai-Sui Yu, Dariusz Wanatowski

Rutting Resistance Ability related to Asphalt-Aggregate Bonding Based on Surface Energy Analysis ................................................................. 189
Lin Cong, Qian Wang, Lintao Cao

Structural Responses of Port Interlocking Concrete Block Pavements Based on A Three-dimensional Mechanic Model ................................................................. 200
Yumin Zhou, Zhiming Tan, Honglong Hu
Effects of Hurricanes Katrina and Rita Flooding on Louisiana Pavement Performance .......................................................... 212
Xingwei Chen, Zhongjie Zhang

Pavement Evaluation Using Ground Penetrating Radar ............................................................................................................... 222
Shongtao Dai, Qiwu Yan

Evaluation of Pavement Preservation Treatments Used in Alaska .................................................................................................. 231
Anthony P. Mullin, Juanyu Liu, Hannele Zubeck

Verification of Mechanistic Prediction Models for Asphalt Mixes ............................................................................................... 241
Mbakisyia A. Onyango, Stefan A. Romanoschi

Simplified Thermal Stress Model to Predict Low Temperature Cracks in Flexible Pavement .......................................................... 251
Md. Rashadul Islam, Umme A. Mannan, Asma Rahman, Rafiqul A. Tarefder

Potential Application of using Multi Head Pavement Breaker for Concrete Pavement Rubblization over Weak Subgrade .......................................................... 262
Moinul Mahdi, Zhong Wu

Evaluation of Two Pavement Rehabilitation Techniques for Municipal Roads ................................................................. 273
Ignatius Fomunung, Joseph Owino, Mbakisyia Onyango, Anmar El Hassan

Pavement Condition Monitoring System at Shanghai Pudong International Airport ........................................................... 283
Hongduo Zhao, Can Wu, Xiaohong Wang, Yuefeng Zheng

Predicting Field Performance of Skid Resistance of Asphalt Concrete Pavement ................................................................. 296
Hui Wang, Robert Y. Liang

Prediction of Bulk and Interface Failure Potential in Asphalt Pavements under Multi-Axial Stress States ......................................................... 306
Hao Wang

Application of Energy Based Approach to Moisture Sensitivity of WMA Mixtures ........................................................................ 316
Feipeng Xiao, Serji N. Amirkhanian, Zhe Luo, Yongyue Wen

Faulting Prediction Model for Design of Concrete Pavement Structures ................................................................. 327
Keivan Neshvadian Bakhsh, Dan Zollinger

Establishment of Performance Models and Effectiveness Evaluation of Pavement Maintenance Treatments at Different Traffic Levels ................................................................. 343
Qiao Dong, Baoshan Huang

Use of Automated Survey for Surface Cracking Distress Condition in a Pavement Management System ........................................... 351
Xin Qiu, Feng Wang

PAVEMENT BASE AND SUBGRADE

Freeze-Thaw Cycling Effect on the Constrained Modulus and UCS of Cementitiously Stabilized Materials ................................................................. 364
Zhipeng Su, James M. Tinjum, Ahmet Gokce, Tuncer B. Edil

Cassava Peel Ash Stabilized Lateritic Soil as Highway Pavement Material ....................................................................................... 375
Joseph Ejelikwu Edeh, Simon Terdoo Tyav, Kolawole Junwolu Osinubi

Predictive Model for Nonlinear Resilient Modulus of Emulsified Asphalt Treated Base ................................................................. 383
Peng Li, Juanyu Liu

Application of Fine Sand in Coastal Areas as Subgrade Filling ............................................................................................... 395
Jinsong Qian, Peng Wang, Peng Tan

Dynamic Stress Study in Pavement Subgrade under a Major Highway in Hong Kong ............................................................ 403
Gordon L. M. Leung, Zhen Leng, Alan W. G. Wong

Prediction of the Variation of the Resilient Modulus with respect to the Soil Suction for Three Granular Materials using Three Methods ................................................................. 414
Zhong Han, Sai K. Vanapalli

Response of Subsoil to Cyclic Load Transferred by Pavement ............................................................................................... 424
Marta Kadela

Author Index