

# JOURNAL OF MATERIALS IN CIVIL ENGINEERING

Vol. 26 - 2014

SPIS TREŚCI

nr 1

## TECHNICAL PAPERS

- 1 Fiber Reinforcement of DCPD-Modified Sulfur Mortar / **Tahmine Enayaty-Ahangar and Siamak Motahari**
- 6 Acoustic Emission Intensity Analysis for In Situ Evaluation of Reinforced Concrete Slabs / **M. Di Benedetti and A. Nanni**
- 14 Evaluation of Tensile Strength-Strain Characteristics of Fiber-Reinforced Soil through Laboratory Tests / **P.V. Divya, B.V.S. Viswanadham, and J.P. Gourc**
- 24 Beneficiation of Natural Zeolite through Flash Calcination for Its Use as a Mineral Admixture in Concrete / **K. Narasimhulu, Ravindra Gettu, and K. Ganesh Babu**
- 34 Elastic Fiber Ropes of Ultrahigh-Extension Capacity in Strengthening of Concrete through Confinement / **Theodoros C. Rousakis**
- 45 Dependence of Volumetric Parameters of Hot-Mix Asphalts on Testing Methods / **Filippo Giammaria Pratico, Rosolino Vaiana, and Antonino Moro**
- 54 State of the Art: Permeability of Asphalt Concrete / **P.J. Vardanega**
- 65 Field Considerations for Calcium Chloride Modification of Soil-Cement / **Benjamin F. Bowers, John L. Daniels, and J. Brian Anderson**
- 71 High Strain Rate Splitting Tensile Tests of Concrete and Numerical Simulation by Mesoscale Particle Elements / **Mingxin Wu, Chuan Qin, and Chuhan Zhang**
- 83 Influences of Electric Potential and Electrolyte on Electrochemical Chloride Removal in Reinforced Concrete / **W. Yodsudjai and W. Saelim**
- 90 Test Technology Study on Mesoscopic Shear Strength of Mineral Aggregate Contact Surface / **Zheng Chuanfeng, Chen Chuanjing, Zhao Dajun, Song Zhenfeng, and Zheng Shi**
- 99 Mechanistic Characterization and Performance Evaluation of Recycled Aggregate Systems / **Reza Ashtiani, Athar Saeed, and Michael Hammons**
- 107 Simulation of Rockfill Materials Using Aggregates of Cement Ellipsoids / **Bing-yin Zhang, Yu-xin Jie, and De-Zhi Kong**
- 117 Accelerated Carbonation of Portland Limestone Cement / **Yixin Shao, Vahid Rostami, Zhen He, and Andrew J. Boyd**
- 125 Dynamic Fracture Toughness of Sandstone Masonry Beams Bound with Fiber-Reinforced Mortars / **Md. Tohidul Islam and Vivek Bindiganavile**
- 134 Key Fresh Properties of Self-Consolidating High-Strength POFA Concrete / **Md. Safiuddin, Md. Abdus Salam, and Mohd. Zamin Jumaat**
- 143 Specimen Size Effects and Dynamic Fracture Toughness of Cement-Based Foams / **Muhammad Mamun and Vivek Bindiganavile**
- 152 Characterizing Fatigue Behavior of Asphalt Mixtures Utilizing Loaded Wheel Tester / **Hao Wu, Baoshan Huang, and Xiang Shu**
- 160 Condition of Chromated Copper Arsenate Treated Hem-Fir Guardrail Posts after 20 Years in Service in Western Washington State / **Connie S. Love, Milo Clauson, Arijit Sinha, and Jeffrey J. Morrell**

- 167 Investigation of the Bond between Concrete Substrate and ECC Overlays / **Mustafa Sahmaran, Hasan E. Yücel, Gurkan Yildirim, Muhannad Al-Emam, and Mohamed Lachemi**

#### **CASE STUDIES**

- 175 Effects of Firing Conditions on the Properties of Calcareous Clay Roofing Tiles / **R. Rekecki, J. Ranogajec, A. Oszkó, and E. Kuzmann**

#### **TECHNICAL NOTES**

- 184 Effects of Water-Binder Ratio and Coarse Aggregate Content on Interior Humidity, Autogenous Shrinkage, and Drying Shrinkage of Concrete / **Jun Zhang, Yu Dong Han, and Yuan Gao**
- 190 Effects of Physio-Chemical Factors on Asphalt Aging Behavior / **Hongying Liu, Peiwen Hao, Hainian Wang, and Sanjeev Adhikair**
- 198 Comparative Analysis of Idaho and Micro-Deval Aggregate Degradation Test Methods / **Linga M. Allam and Arya Ebrahimpour**
- 202 Lateral Performance of Nail Connections from Century-Old Timber Floor Diaphragms / **Aaron Wilson, Pierre J.H. Quenneville, Franklin L. Moon, and Jason M. Ingham**
- 206 Standardized Testing for Determining the Durability of High-Volume Fly Ash Mixtures / **Michelle R. Nokken, Tarek Salloum, Allen Idle, and Luis A. Martinez Ramos**

**TECHNICAL PAPERS**

- 211 Experimental Study on Hybrid Fiber-Reinforced Concrete Subjected to Uniaxial Compression / **Yin Chi, Lihua Xu, and Yuanyuan Zhang**
- 219 Assessment of Mechanical Properties and the Influence of the Addition of Sawdust in Soil-Cement Bricks Using the Technique of Ultrasonic Anisotropic Inspection / **E.V.M. Carrasco, S.R. Silva, and J.N.R. Mantilla**
- 226 Determination of the Most Effective Cement Concrete Block Laying Pattern and Shape for Road Pavement Based on Field Performance / **W.K. Mamparachchi and A. Senadeera**
- 233 Reduction of Tire-Pavement Noise by Porous Concrete Pavement / **Bo Tian, Ying Liu, Kaimin Niu, Sili Li, Jinde Xie, and Xinjun Li**
- 240 Characterization of Noise-Reducing Capacity of Pavement by Means of Surface Texture Parameters / **Miomir Miljković, Martin Radenberg, and Christian Gottaut**
- 250 Expansive Grout-Based Gripping Systems for Tensile Testing of Large-Diameter Composite Bars / **D. Schesser, Q.D. Yang, A. Nanni, and J.W. Giancaspro**
- 259 Evaluating the Effect of Zycosoil on Moisture Damage of Hot-Mix Asphalt Using the Surface Energy Method / **A. Khodaii, V. Khalifeh, M.H. Dehnad, and Gh.H. Hamedi**
- 267 Properties of Two Model Soils Stabilized with Different Blends and Contents of GGBS, MgO, Lime, and PC / **Yaolin Yi, Martin Liska, and Abir Al-Tabbaa**
- 275 Fracture Healing Properties of Asphaltic Material under Controlled Damage / **Shihui Shen and Xin Lu**
- 283 Effect of Baltic Seawater and Binder Type on Frost Durability of Concrete / **A. Cwirzen, P. Sztermen, and K. Habermehl-Cwirzen**
- 288 Investigation of the Mineral Dissolution Rate and Strength Development in Stabilized Soils Using Quantitative X-Ray Diffraction / **Maria Chrysochoou**
- 296 Abrasion Resistance of Self-Consolidating Concrete / **Nader Ghafoori, Meysam Najimi, and Mohammad A. Aqel**
- 304 Mechanical Property Characterization of Warm-Mix Asphalt Prepared with Chemical Additives / **Zhen Leng, Angeli Gamez, and Imad L. Al-Qadi**
- 312 Investigation of the Rheological Modification Mechanism of Warm-Mix Additives on Crumb-Rubber-Modified Asphalt / **Xin Yu, Zhen Leng, and Tangzhong Wei**
- 320 Flexural Behavior of Reinforced Concrete Beams with TRC Tension Zone Cover / **Shiping Yin, Shilang Xu, and Henglin Lv**
- 331 Durability Quantification of TiO<sub>2</sub> Surface Coating on Concrete and Asphalt Pavements / **David Osborn, Marwa Hassan, Somayeh Asadi, and John R. White**
- 338 Chemical and Mechanical Properties of Steel Rebars Manufactured in Pakistan and Their Design Implications / **Muhammad Masood Rafi, Sarosh H. Lodi, and Amir Nizam**
- 349 Reclaimed Asphalt Pavement and Recycled Concrete Aggregate Blends in Pavement Subbases: Laboratory and Field Evaluation / **A. Arulrajah, J. Piratheepan, and M.M. Disfani**
- 358 Aging Influence on Rheology Properties of Petroleum-Based Asphalt Modified with Biobinder / **Julian Mills-Beale, Zhanping You, Elham Fini, Boubacar Zada, Chee Huei Lee, and Yoke Khin Yap**

## **TECHNICAL NOTES**

- 367 Evaluation of Sawdust Ash–Stabilized Lateritic Soil as Highway Pavement Material / **Joseph Ejelikwu Edeh, Isaac Olufemi Agbede, and Audu Tyoyila**
- 374 Long-Term Performance of Rigid Plastic Foam Building Insulation / **James Kallaos, Rolf André Bohne, and Per Jostein Hovde**
- 379 Laboratory Evaluation on Resilient Modulus and Rate Dependencies of RAP Used as Unbound Base Material / **Qiao Dong and Baoshan Huang**
- 384 Relationship between Chemical Shrinkage and Electrical Resistivity for Cement Pastes at Early Age / **Yishun Liao and Xiaosheng Wei**

## **ERRATA**

- 388 Erratum for "Stress-Strain-Temperature Relationship for Structural Steel" by K.W. Poh / **K.W. Poh**

**TECHNICAL PAPERS**

- 391 Assessment of a Sessile Drop Device and a New Testing Approach Measuring Contact Angles on Aggregates and Asphalt Binders / **Murat Koc and Rifat Bulut**
- 399 Generalized Phenomenological Model for the Viscoelasticity of Idealized Asphalts / **M. Costanzi and D. Cebon**
- 411 Influence of Fly Ash and GGBFS in Laterized Concrete Exposed to Elevated Temperatures / **George Mathew and Mathews M. Paul**
- 420 Influence of Clay and Silt Proportions on Cement-Treated Fine-Grained Soil / **Chairat Teerawattanasuk and Panich Voottipruex**
- 429 Comparing Effects of Biobinder with Other Asphalt Modifiers on Low-Temperature Characteristics of Asphalt / **Sassan Aflaki, Pouria Hajikarimi, Ellie H. Fini, and Boubacar Zada**
- 440 Methodology for Modeling the Uncertainty of Material Properties in Asphalt Pavements / **Silvia Caro, Daniel Castillo, and Mauricio Sánchez-Silva**
- 449 Bond Strength of Standard and High-Modulus GFRP Bars in High-Strength Concrete / **K. M. A. Hossain, D. Ametrano, and M. Lachemi**
- 457 Behavior of Natural Fiber in Stone Matrix Asphalt Mixtures Using Two Design Methods / **Aline Colares do Vale, Michéle Dal Toé Casagrande, and Jorge Barbosa Soares**
- 466 Shear Behaviors of Reinforced Ultrahigh Toughness Cementitious Composite Slender Beams with Stirrups / **Li-jun Hou, Shilang Xu, Xiu-fang Zhang, and Da Chen**
- 476 Comparing Results between the Repeated Load Triaxial Test and Accelerated Pavement Test on Unbound Aggregate / **Jawad Hussain, Douglas J. Wilson, Theunis F. P. Henning, and David Alabaster**
- 484 Strength Values of Cementitious Materials in Bending and Tension Test Methods / **Xudong Chen, Shengxing Wu, and Jikai Zhou**
- 491 Implementation of a Triaxial Dynamic Modulus Master Curve in Finite-Element Modeling of Asphalt Pavements / **Yanqing Zhao, Long Bai, and Hui Liu**
- 499 Use of a Neural Network to Predict Strength and Optimum Compositions of Natural Alumina-Silica-Based Geopolymers / **Dali Bondar**
- 504 Early Corrosion Detection in Prestressed Concrete Girders Using Acoustic Emission / **Mohamed K. El Batanouny, Jesús Mangual, Paul H. Ziehl, and Fabio Matta**
- 512 Resilient Modulus and Permanent Deformation Responses of Geogrid-Reinforced Construction and Demolition Materials / **M.A. Rahman, A. Arulrajah, J. Piratheepan, M.W. Bo, and M.A. Imteaz**
- 520 Influence of Clinoptilolite Replacement on Durability of Cement Mortars / **Cahit Bilim**
- 527 Image-Aided Element Shape Generation Method in Discrete-Element Modeling for Railroad Ballast / **Hai Huang and Erol Tutumluer**
- 536 Development of Sustainable Cold Rolled Surface Course Asphalt Mixtures Using Waste Fly Ash and Silica Fume / **Abbas Al-Hdabi, Hassan Al Nageim, Felicite Ruddock, and Linda Seton**

**TECHNICAL NOTES**

- 544 Testing Cement Improved Residual Soil Layers / **Sérgio Filipe Veloso Marques, Nilo Cesar Consoli, and Jorge Almeida e Sousa**

- 531 Viscoelastic Behavior of Silica Particle Compacts under Dynamic Compression / **Shuang Lu and D.D.L. Chung**
- 554 Assessment of Fatigue Resistance of Additivated Asphalt Concrete Incorporating Fibers and Polymers / **Claudio Brovelli, Maurizio Crispino, Jorge C. Pais, and Paulo A.A. Pereira**

**TECHNICAL PAPERS**

- 559 Compressive, Flexural Bond, and Shear Bond Strengths of In Situ New Zealand Unreinforced Clay Brick Masonry Constructed Using Lime Mortar between the 1880s and 1940s / **Ronald Lumantarna, David T. Biggs, Jason M. Ingham**
- 567 Uniaxial Compressive Strength and Stiffness of Field-Extracted and Laboratory-Constructed Masonry Prisms / **Ronald Lumantarna, David T. Biggs, Jason M. Ingham**
- 576 Effects of Rust and Scale of Reinforcing Bars on the Bond Performance of Reinforcement Concrete / **Chung-Ho Huang**
- 582 Evaluation of Sulfate Resistance of Portland Cement Mortars Containing Low-Carbon Rice Husk Ash / **Harish Kizhakkumodom Venkatanarayanan, Prasada Rao Rangaraju**
- 593 Quantification of Hydraulic Phase Contained in a Basic Oxygen Furnace Slag / **P. Y. Mahieux, J. E. Aubert, G. Escadeillas, M. Measson**
- 599 Evaluation of Hydraulic Permeability of Open-Graded Asphalt Mixes Using a Full Numerical Simulation / **A. Benedetto and A. Umiliaco**
- 607 Three-Dimensional Microstructural Modeling Framework for Dense-Graded Asphalt Concrete Using a Coupled Viscoelastic, Viscoplastic, and Viscodamage Model / **Taesun You, Rashid K. Abu Al-Rub, Eyad A. Masad, Emad Kassem, Dallas N. Little**
- 622 Fabrication and Cyclic Behavior of Highly Ductile Superelastic Shape Memory Composites / **Adeel Zafar, Bassem Andrawes**
- 633 Influence of Wet-Dry Cycles on Compressive Strength of Calcium Carbide Residue-Fly Ash Stabilized Clay / **Apichit Kampala, Suksun Horpibulsuk, Nutthachai Prongmanee, Avirut Chinkulkijniwat**
- 644 Suitability of Half-Scale Burnt Clay Bricks for Shake Table Tests on Masonry Walls / **Vaibhav Singhal, Durgesh C. Rai**
- 658 Enhancement in Chloride Diffusivity due to Flexural Damage in Reinforced Concrete Beams / **Walid A. Al-Kutti, Muhammad K. Rahman, Mohammed A. Shazali, Mohammed H. Baluch**
- 668 Fresh, Mechanical, and Durability Characteristics of Self-Consolidating Concrete Incorporating Recycled Asphalt Pavements / **Ahmed Ibrahim, Enad Mahmoud, Yasser Khodair, Varun Chowdary Patibandla**
- 676 Modeling Viscoelastic Behavior of Polyethylene Pipe Stresses / **Ömer Bilgin**
- 684 Modeling Mode I Cracking Failure in Asphalt Binder by Using Nonconserved Phase-Field Model / **Yue Hou, Linbing Wang, Pengtao Yue, Troy Pauli, and Wenjuan Sun**
- 692 Andreasen Particle Packing Method on the Development of Geopolymer Concrete for Civil Engineering / **Paulo H. R. Borges, Lucas F. Fonseca, Vitor A. Nunes, Tulio H. Panzera, Carolina C. Martuscelli**
- 698 Comparison of Two Methods to Assess the Resistance of Concrete to Chloride Ion Penetration / **Eric Ryan, Edwin Burdette, Ryan Ankabrandt, Robert Nidiffer, Brian Buchanan**
- 705 Triaxial Compressive Strength of Concrete Subjected to High Temperatures / **Rabah Hammoud, Ammar Yahia, and Rachid Boukhili**
- 713 Shear Strength of Chemically Based Self-Consolidating Concrete Beams: Fracture Mechanics Approach versus Modified Compression Field Theory / **Mahdi Arezoumandi, Jeffery S. Volz**

- 721 Effects of GTR and Treated GTR on Asphalt Binder and High-RAP Mixtures / **Siavash Vahidi, Walaa S. Mogawer, and Abbas Booshehrian**
- 728 Use of Wicking Fabric to Help Prevent Frost Boils in Alaskan Pavements / **Xiong Zhang, Wendy Presler, Lin Li, David Jones, Brett Odgers**
- 741 Lateral Load Carrying Capacity of Laminated Bamboo Lumber and Oriented Strand Board Connections / **Arijit Sinha, Byrne T. Miyamoto**
- 748 Variability and Characteristics of Recycled Asphalt Shingles Sampled from Different Sources / **Marwa M. Hassan, Aaron Lodge, Louay N. Mohammad, and William "Bill" King Jr.**
- 755 Thermal Performance of Developed Coating Material as Cool Pavement Material for Tropical Regions / **Nickholas Anting Anak Guntor, Mohd Fadhil Md Din, Mohanadoss Ponraj, Kenzo Iwao**
- 761 Experimental Study on Bond Behavior of Deformed Bars Embedded in Concrete Subjected to Biaxial Lateral Tensile Compressive Stresses / **Xue Zhang, Zhimin Wu, Jianjun Zheng, Yu Hu, Qingbin Li**

#### **TECHNICAL NOTES**

- 773 Addition of Lime and Fly Ash to Improve Highway Subgrade Soils / **A. Athanasopoulou**
- 776 Fluid-Pressured Test to Measure Tensile Strength of Concrete / **Victor Cantillo, Andrés Guzmán**
- 781 Creep-Recovery Behavior of Asphalt Binders Modified with SBS and PPA / **M.D.I. Domingos, A.L. Faxina**
- 784 Existence of Dividing Strength in Concrete Containing Recycled Coarse Aggregate / Shaikh Faiz Uddin Ahmed
- 789 Effect of Supplementary Cementitious Materials on the Performance of Concrete Pavement / **K. Hanna, G. Morcous, M.K. Tadros**



**TECHNICAL PAPERS**

- 795 Effect of Molecular Structure on the Short-Term and Long-Term Mechanical Behavior of High-Density Polyethylene / **Yashar Behjat, Joy J. Cheng, Maria Anna Polak, Alexander Penlidis**
- 803 Performance Assessment of a Warm Asphalt Binder in the Presence of Water by Using Surface Free Energy Concepts and Nanoscale Techniques / **Abdalla S. Al-Rawashdeh Shad Sargand**
- 812 Unidirectional Heat-Transfer Asphalt Pavement for Mitigating the Urban Heat Island Effect / **Wang ShengYue, Zhu QiYang, Duan YingNa, Shang PeiDong**
- 822 Probability Distribution Model for Cross-Sectional Area of Corroded Reinforcing Steel Bars / **Weiping Zhang, Binbin Zhou, Xianglin Gu, Hongchao Dai**
- 833 Behavior of Stabilized Subgrade Soils under Indirect Tension and Flexure / **Pranshoo Solanki, Musharraf Zaman**
- 845 Effects of Aggregate and Specimen Sizes on Lightweight Concrete Fracture Energy / **Jae-II Sim, Keun-Hyeok Yang, Eun-Taik Lee, Seong-Tae Yi**
- 855 Rational Procedure for Composition of Screed Mortar with Recycled Sand at a Construction Site / **Leonardo Fagundes Rosembach Miranda, Maylane Pedrosa Lapenda, Sidnei H. C. Teixeira, Vanessa Vogt**
- 863 Effects of Various Environmental Exposures and Sustained Load Levels on the Service Life of Postinstalled Adhesive Anchors / **Adham El Menoufy, Khaled Soudki**
- 872 Fatigue Performance and Prediction Model of Multilayer Deck Pavement with Different Tack Coat Materials / **Haotian Li, Bin Yu**
- 878 Exploring Cementitious Additives for Pretreatment of High-Early-Strength Sewage Sludge from the Perspective of the Rapid Generation of Nonevaporable Water / **Xiaohui Sun, Wei Zhu, Xuede Qian, Zhirong Xu**
- 886 Dicyclopentadiene and Sodium Silicate Microencapsulation for Self-Healing of Concrete / **James Gilford III, Marwa M. Hassan, Tyson Rupnow, Michele Barbato, Ayman Okeil, Somayeh Asadi**
- 897 Investigating the Effects of Loading Frequency and Temperature on Moisture Sensitivity of SBS-Modified Asphalt Mixtures / **Ali Khodaii, Fereidoon Moghadas Nejad, Seyed Arash Forough, Arash Saleh Ahari**
- 904 Modeling the Primary and Secondary Regions of Creep Curves for SBS-Modified Asphalt Mixtures under Dry and Wet Conditions / **Arash Saleh Ahari, Seyed Arash Forough, Ali Khodaii, Fereidoon Moghadas Nejad**
- 912 Synthesis and Characterization of Fly Ash Geopolymer Sand / **Sudhakar M. Rao, Indra Prasad Acharya**
- 918 Passive Wireless Detection of Corrosive Salts in Concrete Using Wire-Based Triggers / **Nicholas Materer, Paul Field, Nicholas Ley, Ahmad Razzaghi Soufiani, Dane Scott, Tyler Ley, Allen Aplett**
- 923 Wireless Crack Detection in Concrete Elements Using Conductive Surface Sensors and Radio Frequency Identification Technology / **Mohammad Pour-Ghaz, Timothy Barrett, Tyler Ley, Nicholas Materer, Allen Aplett, Jason Weiss**
- 930 Molecular Dynamics Study of Water and Ions Transported during the Nanopore Calcium Silicate Phase: Case Study of Jennite / **Dongshuai Hou, Zongjin Li**

- 941 Characterizing Rheological Properties of Binder and Blending Efficiency of Asphalt Paving Mixtures Containing RAS through GPC / **Sheng Zhao, Benjamin Bowers, Baoshan Huang, Xiang Shu**
- 947 Internal Curing Efficiency of Prewetted LWFAs on Concrete Humidity and Autogenous Shrinkage Development / **Ya Wei, Yaping Xiang, Qianqian Zhang**
- 955 Mesoscale Modeling of Chloride Penetration in Unsaturated Concrete Damaged by Freeze-Thaw Cycling / **Licheng Wang, Tamon Ueda**
- 966 Aging Characteristics of RAP Blend Binders: Rheological Properties / **Shin-Che Huang, Thomas F. Turner**
- 974 Evaluation of Interface Shear Strength Properties of Geogrid-Reinforced Construction and Demolition Materials Using a Modified Large-Scale Direct Shear Testing Apparatus / **A. Arulrajah, M. A. Rahman, J. Piratheepan, M. W. Bo, M. A. Imteaz**
- 983 Non-Ureolytic Bacterial Carbonate Precipitation as a Surface Treatment Strategy on Cementitious Materials / **Jing Xu, Wu Yao, Zhengwu Jiang**
- 992 Breakage Characteristics and Crushing Mechanism of Cement Materials Using Point-Loading Tests and the Discrete-Element Method / **Xiao-bo Wang, Wen-jie Xu, Bing-yin Zhang**

#### **TECHNICAL NOTES**

- 1003 Effects of Curing Environment on the Strength and Mineralogy of Lime-GGBS-Treated Acid Sulphate Soils / **S. Islam, A. Haque, S.A. Wilson**
- 1009 Effect of Accelerated Loading on the Compressibility Characteristics of Lime-Treated Semiarid Soils / **Arif Ali Baig Moghal, Ali Abdul Kareem Obaid, Talal O. Al-Refeai**

**TECHNICAL PAPERS**

- 04014001 Electrochemical-Mechanistic Model for Concrete Cover Cracking Due to Corrosion Initiated by Chloride Diffusion / **G. Nossoni, R.S. Harichandran**
- 04014002 Effect of Water-to-Binder Ratio, Air Content, and Type of Cementitious Materials on Fresh and Hardened Properties of Binary and Ternary Blended Concrete / **Ezgi Yurdakul, Peter C. Taylor, Halil Ceylan, Fatih Bektas**
- 04014003 Influence of Combined Transportation Time and Temperature on Flow Properties of Self-Consolidating Concrete / **Nader Ghafoori, Hamidou Diawara**
- 04014004 Appropriate Wood Constitutive Law for Simulation of Nonlinear Behavior of Timber Joints / **Bo-Han Xu, Abdelhamid Bouchair, Patrick Racher**
- 04014005 Experimental Study on Dynamic Tensile Strength of Cement Mortar Using Split Hopkinson Pressure Bar Technique / **Xudong Chen, Shengxing Wu, and Jikai Zhou**
- 04014006 Influence of Natural Coarse Aggregate Type on the Transport Properties of Recycled Concrete / **Claudio Javier Zega, Ángel Antonio Di Maio, and Raúl Luis Zerbino**
- 04014007 Strength and Stiffness Characterization of Controlled Low-Strength Material Using Native High-Plasticity Clay / **Bhaskar Chittoori, Anand J. Puppala, Anil Raavi**
- 04014008 Mechanical Properties of Structural Concrete Containing Fine Aggregates from Waste Generated by the Marble Quarrying Industry / **Diogo Silva, Filipe Gameiro, and Jorge de Brito**
- 04014009 Determination of Mechanical Properties of Cement Asphalt Mortar via UPV Method / **Kechao Qiu, Huisu Chen, Wei Sun, Lu Sun, Jinxiang Hong, Guotang Zhao**
- 04014010 Effect of Naturally Occurring Salts on Tensile and Shear Strength of Sealed Granular Road Pavements / **Ryan de Carteret, Olivier Buzzi, Stephen Fityus, Xianfeng Liu**
- 04014011 Workability Evaluation of Foamed Warm-Mix Asphalt / **Ayman Ali, Ala Abbas, Munir Nazzal, Ahmad Alhasan, Arjun Roy, David Powers**
- 04014012 Experiments of Chloride Ingression in Loaded Concrete Members under the Marine Environment / **Yuanzhan Wang, Chen'anpan Lin, Yanqiang Cui**
- 04014013 Effect of Input Source Energy on SASW Evaluation of Cement Concrete Pavement / **Jyant Kumar, Sutapa Hazra**
- 04014014 Compressibility Characteristics of Low-Plasticity Silt before and after Liquefaction / **Shuying Wang, Ronaldo Luna**
- 04014015 Rheological Properties and Performance Evaluation of Phenol Formaldehyde Modified Bitumen / **Meltem Çubuk, Metin Gürü, Mustafa Kürşat Çubuk, Deniz Arslan**
- 04014016 Application of Statistical Analysis for Mixture Design of High-Strength Self-Consolidating Concrete Containing Metakaolin / **Ahmed A. Abouhussien, Assem A. A. Hassan**

## **CASE STUDIES**

05014001 Uniform Model for Moisture Transport in Porous Materials and Its Application to Concrete at Selected Chinese Regions / **Qiang Zeng, Yuyang Wang, Kefei Li**

## **TECHNICAL NOTES**

- 06014001 Effect of Uniaxial Strength and Fracture Parameters of Concrete on Its Biaxial Compressive Strength / **E. Chen, Christopher K.Y. Leung**
- 06014002 Specimen Slenderness and the Influence of Joint Orientation on the Uniaxial Compressive Strength of Singly Jointed Rock / **P.L.P. Wasantha, P.G. Ranjith, Daniel R. Viete**
- 06014003 Frequency and Temperature Interactive Effects on Hot Mix Permanent Deformation Using Response Surface Methodology / **H.F. Haghshenas, A. Khodaii, A. Mehrara, M.H. Dehnad, A.S. Ahari**
- 06014004 Testing and Acceptance Criteria for Fiber-Reinforced Composite Grid Connectors Used in Concrete Sandwich Panels / **Mahmut Ekenel**
- 06014005 Applicability of Municipal Solid Waste Incineration Ash on Base Layers of Pavements / **Gino Omar Calderón Vizcarra, Michéle Dal Toé Casagrande, Laura Maria Goretti da Motta**
- 06014006 Evaluation of Mechanical Properties and Structural Integrity for Pervious Concrete Pavement Systems / **Ikiensinma Gogo-Abite, Manoj Chopra, Ikenna Uju**
- 06014007 Using the Artificial Neural Networks Methodology to Predict the Vertical Swelling Percentage of Expansive Clays / **Shlomo Bekhor, Moshe Livneh**

**TECHNICAL PAPERS**

- 04014017 Micromechanics-Based Optimization of Pigmentable Strain-Hardening Cementitious Composites / **En-Hua Yang, Estela O. Garcez, Victor C. Li**
- 04014018 Impact of Concrete Thermophysical Properties on Pavement Structural Design / **Pejman Keikhaei Dehdezi**
- 04014019 Multiscale Evaluation of the Composite Asphalt Binder in High-Reclaimed Asphalt Pavement Mixtures / **Munir D. Nazzal, Walaa Mogawer, Savas Kaya, Thomas Bennert**
- 04014020 Model to Simulate the Contribution of Fiber Reinforcement for the Punching Resistance of RC Slabs / **Bernardo N. Moraes Neto, Joaquim A.O. Barros, Guilherme S.S.A. Melo**
- 04014021 Effectiveness of Lithium Nitrate in Mitigating Alkali-Silica Reaction in the Presence of Fly Ashes of Varying Chemical Compositions / **Harish Kizhakkumodom Venkatanarayanan, Prasada Rao Rangaraju**
- 04014022 Designing a Strand Orientation Pattern for Improved Shear Properties of Oriented Strand Board / **Kenton Alldritt, Arijit Sinha, Thomas H. Miller**
- 04014023 Empirical Estimation of Pore Size Distribution in Cement, Mortar, and Concrete / **Fuyuan Gong, Dawei Zhang, Evdon Sicat, Tamon Ueda**
- 04014024 Innovative Approach to Characterizing Damage Evolution in Asphalt Concrete during Fatigue Tests / **Haifang Wen, Sushanta Bhusal, Renjuan Sun**
- 04014025 Recycled-Glass Blends in Pavement Base/Subbase Applications: Laboratory and Field Evaluation / **A. Arulrajah, M.M.Y. Ali, M.M. Disfani, S., Horpibulsuk**
- 04014026 Influence of Aggregate Gradation on Clogging Characteristics of Porous Asphalt Mixtures / **William D. Martin, Bradley J. Putman, Andrew I. Neptune**
- 04014027 Compressive Strength of Concrete Cores with Different Lengths / **Xudong Chen, Shengxing Wu, Jikai Zhou**
- 04014028 Development of the Road Aggregate Test Specifications for the Modified Ethylene Glycol Durability Index for Basic Crystalline Materials / **Robert C. Leyland, Phil Paige-Green, Moe Momayez**
- 04014029 Nature and Performance of Tropical Wood Natural Fiber Cementitious Composites / **Mizi Fan, Maurice Kor Ndikontar**

**CASE STUDIES**

- 05014002 Hygrothermal Features of Laterite Dimension Stones for Sub-Saharan Residential Building Construction / **Abdou Lawane, Raffaele Vinai, Anne Pantet, Jean-Hugues Thomassin, Adamah Messan**

**TECHNICAL NOTES**

- 06014008 Dependence of the Material Properties of Lightweight Cemented Soil on the Curing Temperature / **Kwang-Suek Oh and Tae-Hyung Kim**
- 06014009 Viability of Hybrid Poplar in ANSI Approved Cross-Laminated Timber Applications / **Anthonie Kramer, Andre R. Barbosa, Arijit Sinha**

- 06014010 Utilization of Silica Fume to Stabilize the Dispersion of Carbon Nanofilaments in Cement Paste / **Ardavan Yazdanbakhsh, Zachary Grasley**
- 06014011 Durability of Concrete with Recycled Coarse Aggregates: Influence of Superplasticizers / **Daniel Matias, Jorge de Brito, Alexandra Rosa, and Diogo Pedro**
- 06014012 Cyclic Behavior and Liquefaction Potential of Indian Pond Ash Located in Seismic Zones III and IV / **Supriya Mohanty, Nihar Ranjan Patra**
- 06014013 Thermal Conductivity of Bentonite Grout Containing Graphite or Chopped Carbon Fibers / **Eric Tiedje, Peijun Guo**
- 09014001 REVIEWERS

**TECHNICAL PAPERS**

- 04014030 Universal Stress-Strain Equation for Metallic Materials / **Francisco Salguero, Sixto Romero, Fulgencio Prat, Ricardo Arribas, and Francisco Moreno**
- 04014031 Bond Performance between Ultrahigh-Performance Concrete and Normal-Strength Concrete / **Miguel A. Carbonell Muñoz, Devin K. Harris, Theresa M. Ahlborn, and David C. Froster**
- 04014032 Concrete Production Plant Variables Affecting Flexural Strength Relative to Compressive Strength / **David N. Richardson and Brent A. Whitwell**
- 04014033 Fractal and Multifractal Characteristics of 3D Asphalt Pavement Macrotecture / **Yinghao Miao, Pingping Song, and Xiuqing Gong**
- 04014034 Flexural Behavior of Flat-End Steel-Fiber-Reinforced Concrete / **Osama A. Abaza and Zaid S. Hussein**
- 04014035 Pollution and Purification Study of the Pervious Concrete Pavement Material / **Ming-Gin Lee, Mang Tia, Shun-Hsing Chuang, Yishuo Huang, and Chia-Liang Chiang**
- 04014036 Endurance Limit for HMA Based on Healing Concept Using Uniaxial Tension-Compression Fatigue Test / **Waleed A. Zeiada, Mena I. Souliman, Kamil E. Kaloush, and Michael Mamlouk**
- 04014037 Effect of Test Temperature on Hamburg Wheel-Tracking Device Testing / **Ibrahim Sel, Yetkin Yildirim, and Hacer Bilir Ozhan**
- 04014038 Flexural Behavior of Concrete Beams Reinforced with Different Types of Geogrids / **F. El Meski and G.R. Chehab**
- 04014039 Effect of Fiber Inclusions on Flexural Strength of Soils Treated with Nontraditional Additives / **Site Onyejekwe and Gurmel S. Ghataora**
- 04014040 Experimental Research on Properties of Fresh and Hardened Rubberized Concrete / **Chen Bing and Liu Ning**
- 04014041 Quantifying the Effects of Chip Seal Volumetrics on the Occurrence of Pavement Flushing / **Sachi Kodippily, Theunis F.P. Henning, Jason M. Ingham, and Glynn Holleran**
- 04014042 Novel Testing Procedure for Assessment of Quality of Foamed Warm Mix Asphalt Binders / **Hande I. Ozturk and M. Emin Kutay**
- 04014043 Durability of Polymer Infused Roots Used for Soil Stabilization / **Miguelangel Saucedo, Drew W. Johnson, Jie Huang, Sazzad Bin-Shafique, Valerie M. Sponsel, and Mark Appleford**
- 04014044 Predicting Residual Tensile Strength of Seven-Wire Strands Using That of Single Wires Exposed to Chloride Environments / **Radhakrishna G. Pillai, Kenneth F. Reinschmidt, David Trejo, Paolo Gardoni, and Mary Beth D. Hueste**
- 04014045 Evaluation of Moisture Sorption and Diffusion Characteristics of Asphalt Mastics Using Manual and Automated Gravimetric Sorption Techniques / **Alex K. Apeageyi, James R. A. Grenfell, and Gordon D. Airey**
- 04014046 Sympathetic Detonation Wave Attenuation Using Polyurethane Foam / **Hosam E. Mostafa, Waleed F. Mekky, and Wael W. El-Dakhakhni**
- 04014047 Mechanical Behaviors of Steel Reinforced ECC or ECC/Concrete Composite Beams under Reversed Cyclic Loading / **Fang Yuan, Jinlong Pan, Luoting Dong, and C.K.Y. Leung**

## **CASE STUDIES**

- 05014003 Reuse of Fine Quarry Wastes in Pavement: Case Study in Brazil / **Lilian Ribeiro de Rezende, Leonardo Ramos da Silveira, Weliton Lima de Araújo, and Marta Pereira da Luz**
- 05014004 Characterization of the Karstic Process in an Urban Environment Using GPR Surveys / **Ó. Pueyo Anchuela, A. M. Casas-Sainz, A. Pocoví-Juan, H. Gil Garbí, and P. Calvín**

## **TECHNICAL NOTES**

- 06014014 Empirical Models for Modulus of Elasticity of HSC Considering the Effect of In Situ Curing Conditions / **Jiabin Li, Jianzhuang Xiao, Frank Dehn, and Nguyen Viet Tue**
- 06014015 Effect of Curing Temperature on the Strength of Sand, Coal Fly Ash, and Lime Blends / **Nilo Cesar Consoli, Cecília Gravina da Rocha, and Carina Silvani**
- 06014016 Densification of Land Reclamation Sands by Deep Vibratory Compaction Techniques / **Myint Win Bo, Arul Arulrajah, Suksun Horpibulsuk, Melvyn Leong, and Mahdi Miri Disfani**
- 06014017 Effect of Plant-Induced Calcite Precipitation on the Strength of Sand / **Sung-Sik Park, Sun-Gyu Choi, and In-Hyun Nam**
- 06014018 Evaluation of Particle Size Distribution of Coal Gangue through Fractal Method in Dongkuang Mine, Heshan, China / **Zhaohui Tang, Xinxin Dong, Bo Chai, and Yue Yang**
- 06014019 Compressive Strength of Double H Concrete Block Masonry Prisms / **Liang Huang, Lejia Liao, Libo Yan, and Hongwei Yi**



**TECHNICAL PAPERS**

- 04014048 Experiment and Modeling of the Effect of Aggregate Shape on the Chloride Diffusivity of Concrete / **Jianjun Zheng, Xinzhu Zhou, Xiaofeng Huang, and Chuanqing Fu**
- 04014049 Effect of a Sand Mix Interlayer on Thermal Cracking in Overlays / **Yongli Xu, Liyan Shan, and Zhiqi Sun**
- 04014050 Flow and Strength Characteristics of CLSM Using Ground Granulated Blast Furnace Slag / **T. Raghavendra and B.C. Udayashankar**
- 04014051 Potential Uses of Sewage Sludge in Highway Construction / **Lêda Christiane de Figueirêdo Lopes Lucena, José Fernando Thomé Juca, Jorge Barbosa Soares, and Manoel Gualberto Portela**
- 04014052 Heterogeneous Finite-Element Modeling of the Dynamic Complex Modulus Test of Asphalt Mixture Using X-ray Computed Tomography / **Hao Ying, Mostafa A. Elseifi, Louay N. Mohammad, and Marwa M. Hassan**
- 04014053 Effect of External Loads on Chloride Diffusion Coefficient of Concrete with Fly Ash and Blast Furnace Slag / **Li Hongming, Wu Jin, Song Yongji, and Wang Zhe**
- 04014054 Environment-Assisted Degradation of the Bond between Steel and Carbon-Fiber-Reinforced Polymer / **Y. Bai, T.C. Nguyen, X.L. Zhao, and R. Al-Mahaidi**
- 04014055 Static Creep and Repeated Load as Rutting Performance Tests for Airport HMA Mix Design / **John F. Rushing and Dallas N. Little**
- 04014056 Characteristics and Performance of Cement Modified-Base Course Material in Western Australia / **Peerapong Jitsangiam, Suphat Chummuneerat, Tanapon Phenrat, and Hamid Nikraz**
- 04014057 Role of Filler Effect and Pozzolanic Reaction of Biomass Ashes on Hydrated Phase and Pore Size Distribution of Blended Cement Paste / **Prinya Chindaprasirt, Theerawat Sinsiri, Wunchock Kroehong, and Chai Jaturapitakkul**
- 04014058 Statistical Determination of Cracking Probability for Mass Concrete / **Kyle A. Riding, Jonathan L. Poole, Anton K. Schindler, Maria C.G. Juenger, and Kevin J. Folliard**
- 04014059 Acoustic Emission Historic Index and Frequency Spectrum of Reinforced Concrete under Accelerated Corrosion / **M. Di Benedetti, G. Loreto, F. Matta, and A. Nanni**
- 04014060 Fracture-Mechanical Properties of Mortar-to-Brick Interfaces / **A. Schneemayer, C. Schranz, A. Kolbitsch, and E.K. Tschegg**
- 04014061 Experimental Investigation and Numerical Modeling of Peak Shear Stress of Brick Masonry Mortar Joint under Compression / **Ataur Rahman and Tamon Ueda**
- 04014062 Crumb Rubber Concrete Performance under Near-Field Blast and Ballistic Demands / **Clay Naito, Joe States, Christopher Jackson, and Bryan Bewick**
- 04014063 Nanomechanical Characterization Effect of Mica and Aging on Asphalt Binder / **Rafiqul Tarefder, Hasan Faisal, and Helen Sobien**
- 04014064 Evaluation of the Mechanical Properties of Field- and Laboratory-Compacted Hot-Mix Asphalt / **Baha Vural Kök, Mehmet Yilmaz, and Taner Alataş**

- 04014065 Laboratory Evaluation of Utilizing Waste Heavy Clay and Foundry Sand Blends as Construction Materials / **Qiao Dong, Vicki Huang, and Baoshan Huang**
- 04014066 Impact of the Properties and Reactivity of Rice Husk Ash on Lime Mortar Properties / **S. Pavía, R. Walker, P. Veale, and A. Wood**

#### **TECHNICAL NOTES**

- 06014020 Fatigue Behavior of Precorrosion Deformed Bars / **Shibin Li, Hongwei Tang, Xin Zhang, Wei Sun, and Robert De Bold**

#### **DISCUSSIONS AND CLOSURES**

- 07014001 Discussion of "Effect of Testing Method and Strain Rate on Stress-Strain Behavior of Concrete" by Xudong Chen, Shengxing Wu, Jikai Zhou, Yuzhi Chen, and Aiping Qin / **José R. Martí-Vargas**
- 07014002 Closure / **Xudong Chen, Shengxing Wu, Jikai Zhou, Yuzhi Chen, and Aiping Qin**

#### **RETRACTION**

- 08514001 Retraction: Pan, T., Yu, Q., and Lloyd, S. (2013). "Quantum-chemistry-based study of beech-wood lignin as an antioxidant of petroleum asphalt." *J. Mater. Civ. Eng.*, 25(10), 1477–1488; DOI:10.1061/(ASCE)MT.1943-5533.0000684

### TECHNICAL PAPERS

- 04014067 Efficacy of a Ternary Blend Mixture in Improving Bridge Deck Concrete Durability in Tennessee / **Robert Nidiffer, Edwin Burdette, Casey Brown, and Ryan Ankabrandt**
- 04014068 Assessment of Compressive Behavior of Concrete Masonry Prisms Partially Filled by General Mortar / **Vladimir G. Haach, Graça Vasconcelos, and Paulo B. Lourenço**
- 04014069 Correlation between Cohesive Crack-Tip Local Fracture Energy and Peak Load in Mortar Beams / **Shutong Yang, Xiaozhi Hu, Kezhi Leng, and Yalin Liu**
- 04014070 Weatherability of Stabilized Soil Masonry Materials / **F.O. Ogunye**
- 04014071 Research Progresses in Magnesium Phosphate Cement-Based Materials / **Nan Yang, Caijun Shi, Jianming Yang, and Yuan Chang**
- 04014072 Pavement Health Monitoring System Based on an Embedded Sensing Network / **Wenjing Xue, Linbing Wang, Dong Wang, and Christian Druta**
- 04014073 Fresh and Hardened Properties of Concrete Incorporating Recycled Glass as 100% Sand Replacement / **Jared R. Wright, Chris Cartwright, DanFura, and Farshad Rajabipour**
- 04014074 High-Performance Fiber-Reinforced Concrete: Development and Evaluation as a Repairing Material / **Manish Roy, Indrajit Ray, and Julio F. Davalos**
- 04014075 Assessment of Crumb Rubber Concrete for Flexural Structural Members / **Clay Naito, Joe States, Christopher Jackson, and Bryan Bewick**
- 04014076 Mechanical Performance of Structural Concrete with the Incorporation of Coarse Recycled Concrete and Ceramic Aggregates / **M. Gomes, J. de Brito, and M. Bravo**

### CASE STUDIES

- 05014005 Recycling Dredged Sludge in Asphalt Pavement / **A. D'Andrea, C. Fustaino, and C. Tozzo**

### TECHNICAL NOTES

- 06014021 Water-Void to Cement Ratio Identity of Lightweight Cellular-Cemented Material / **Suksun Horpibulsuk, Apichat Suddepong, Cherdasak Suksiripattanapong, Avirut Chinkulkijniwat, Arul Arulrajah, and Mahdi Miri Disfani**

### DISCUSSIONS AND CLOSURES

- 07014003 Discussion of "Tensile Creep Behavior of Concrete Subject to Constant Restraint at Very Early Ages" by Ya Wei and Will Hansen / **Yun Lin and Hung-Liang (Roger) Chen**
- 07014004 Closure / **Ya Wei and Will Hansen**