ISBN(softcover): 978-3-0357-1092-2 ISBN(eBook): 978-3-0357-3092-0

Table of Contents

Preface, Scientific Committee

Chapter 1: Practice of Experimental Identification in Construction

Experiments on Wall Panels with One-Sided Board Sheathing for Timber Structures
J. Celler, J. Dolejs and V. Hlavata 3

Mechanical Properties of Cement Composite with Material Based on Waste Marble Powder and Crushed Limestone
L. Hlubocký and Z. Prošek 9

Early Stage Development of Cement Paste Microstructure
V. Hrbek, V. Petranova and J. Němeček 14

Mechanical Properties of the Cement Paste with Fine Ground Recycled Concrete Depending on the Microstructure
J. Hrůza, J. Topič and Z. Prošek 22

Membrane Structures - Aspects of Form-Finding Process
M. Huttner, P. Fajman and J. Maca 28

Reinforced Masonry Column's Analysis: The Influence of Rounded Corners
A. Marousková 34

Analysis of Experimental and Calculated Values of Shear Broken Cement Paste
B. Mužíková, P. Padevět, P. Bittnar and J. Antoš 40

Dependence of Tensile Bending Strength of Rammed Earth on Used Clay Composition and Amount of Mixture Water
T. Otcovská and P. Padevět 48

The Effect of Micronized Waste Marble Powder as Partial Replacement for Cement on Resulting Mechanical Properties of Cement Pastes
Z. Prošek, K. Šeps and J. Topič 54

The Durability of Fine Recycled Aggregate Concrete
M. Šefflová and T. Pavlů 59

Flexural and Compressive Strength of the Cement Paste with Recycled Concrete Powder
J. Topič, J. Fládr and Z. Prošek 65

Utilization of Plasma Treated Polymeric Macro-Fibers as Reinforcement in Concrete Constructions
J. Trejbal, J. Fládr and L. Kopecký 70

Measurement of Vibration Levels on Grandstand Caused by Spectators during Football Match
M. Verner 76

Durability of Concrete with Fly Ash from the Dam Orlík after 55 Years
O. Zobal, P. Reiterman, T. Plachy and Z. Bittnar 81

Microfiber Angle and its Effect on Wood Cell Behavior
V. Hlavata, P. Kuklík, J. Celler and J. Vanerek 88

Chapter 2: Computational Methods in Designing and Research

Evaluation of Different Approaches to Solution of the Direct Solution of Large, Sparse Systems of Linear Equations
M. Bošanský and B. Patzák 97

Wang Tiling Based Enrichment Functions for Extended Finite Element Method
M. Doškář, J. Novák and J. Zeman 102

Locking Removal Techniques for the Isogeometric Formulation of Curved Beams
E. Dvořáková and B. Patzák 109

Künzel Model and Boundary Inverse Problem
J. Havelka and J. Sýkora 115

Microstructure-Based Evolution of Compressive Strength of Blended Mortars: A Continuum Micromechanics Approach
M. Hlobil 121

Parameter Study on Subset Simulation for Reliability Assessment
A. Hlobilová and M. Lepš 128

Bayesian Updating of Aleatory Uncertainties in Heterogeneous Materials
E. Janouchová, A. Kučerová and J. Sýkora 136

Quasicontinuum Method Combined with Anisotropic Microplane Model
K. Mikeš and M. Jirásek 142

Surrogate Based Evaluation of the Design of Experiments
E. Myšáková and M. Lepš 148

The Response of a SDOF System Driven by a Periodic Random Force
V. Sana, O. Rokos and J. Maca 153

Adaptive Boundaries of Wang Tiles for Heterogeneous Material Modelling
D. Šedlbauer 159

Galerkin-Eshelby Meshless Approach to Multiple Inclusion Problem
S. Šulc and J. Novák 167

Comparison of Semidefinite Solvers for Topology Optimization of Cantilever Trusses Subject to Fundamental Eigenvalue Constraint
M. Tyburec and J. Zeman 172

Synthesized Fields Fluctuations by Means of Wang Tiles and Local Tilings
L. Zrůbek, A. Kučerová and J. Novák 178