## **Table of Contents**

## **Preface**

## **Chapter 1: Building Materials**

Experimental Studies of Fiber-Reinforced Concrete Prisms Exposed to High Temperatures S. Berestianskaya, E. Galagurya, O. Opanasenko, A. Berestianskaya and I. Bychenok	3
Study and Comparison of Characteristics of Models of Hollow-Core Slabs, Reinforced Concrete and Steel-Fiber Concrete M. Surianinov, S. Neutov, I. Korneeva and M. Sydorchuk	9
Experimental Investigations of Concrete on Slag Portland Cement as a Coating Material for Agricultural Aerodromes O. Yanin, T. Yemelianova and S. Novikova	19
Decorative Concrete with the Addition of Highly Dispersed Organogenic Calcite (Chalk) in the Landscape Architecture of the Modern City S. Chepurna, T. Zhydkova and O. Popova	27
Frost Resistance of Decorative Composites of Different Composition A.D. Dovgan, V.M. Vyrovoy, P.M. Dovgan and S.V. Silchenko	35
Fractal Model of the Influence of Expanded Clay Concrete Macrostructure on its Strength S. Kroviakov, V. Volchuk and M. Zavoloka	43
<b>Determination of Transition Stages of Structure Formation by Experimental Data</b> V. Kersh, A. KOLESNIKOV, N. Hlytsov and A. Foshch	53
Modeling and Optimization of Technology and Physics-Mechanical Properties of Composite Materials  L. Trofimova	59
Laboratory Studies of the Heat-Insulating Properties of the Panels that Made of Recycled Rubber	
A. Crnoja, V. Kersh, O. Popov and A. Dovhulia  The Effect of Silicate Fillers on Adhesion and Adhesion Strength Properties of Water-Based	66
Coatings N.V. Saienko, R.A. Bikov, Y.V. Popov, D.V. Demidov and B. Younis	73
Development of Methods for Determining the Term of Effective Exploitation of Thermal Insulation Materials for 100 Years G. Farenyuk and O. Oleksiienko	80
The Influence of the Structure on the Destruction Mechanism of Polymer-Cement Plaster Coating	
V. Paruta, O. Gnyp, L. Lavrenyuk and I. Grynyova	93
Study of Pavements of Concrete Paving Blocks with Ribbed Underside Surface V. Dumanska, O. Kalinin, N. Sidorova and T. Kalinina	101
Environmental Problems of Phosphogypsum Utilization V. Vinnichenko and A. Riazanov	108
Corrosion Resistance of Polyester Powder Coatings Using Fillers of Various Chemical Nature V. Gots, O. Lastivka, O. Berdnyk, O. Tomin and P. Shilyuk	115
On the Question of the Application of Basalt Microfiber for Reinforcement of Thermal Insulation AAC	110
S.D. Lapovska, T.M. Demchenko, O.Y. Kovalchuk and V.O. Chornovol	122
Modern Systems of Heat Insulation Buildings O. Lapenko, S. Skrebnieva, K. Omelchenko and I. Mashkov	128
Ensuring Strength of Fine Grained Concrete with Mixed Cement Binders A. Abdykalykov, M. Dzhusupova, N. Antoniuk and A. Talantbek Kyzy	134
Research of Conditions of Removal of Fire Protection from Building Construction Y. Tsapko, A. Tsapko and O.P. Bondarenko	141

Crack Resistance and Width of Crack Opening of Beams with Hybrid Reinforcement Using BFRP and Metal Armature O.I. Valovoi, O.Y. Eremenko, M.O. Valovoi and S.O. Volkov	149
The Study of the Processes of Structure Formation in the System "Portland Cement-Carbon Nanotubes-Surfactant" from the Point of View of Physicochemical Mechanics of Dispersed Systems	
K. Pushkarova, A. Plugin and M. Sukhanevych	158
<b>Wood Science Characteristics of Timber from Pine Deadwood Trees (</b> <i>Pinus sylvestris L.</i> <b>)</b> S. Novytskyi, N. Marchenko, O. Kovalenko and N. Buiskykh	164
Research of the Reasons of Frost Destruction of Road Concrete S. Tolmachov	175
Influence of Type of Alkaline Activator on Durability of Alkali Activated Concrete Using Aggregates Capable to Alkali-Silica Reaction P.V. Krivenko and O.Y. Kovalchuk	180
Chapter 2: Materials and Processing Technologies in Machinery	
Role of Activation in Formation of Polymer Composite Properties N. Kazmirchuk, O. Korobko, S. Semenova and O. Rozhniuk	191
Investigation of Influence of Plasma Spraying Process Parameters on the Level of Residual Stresses	
I.N. Kravchenko, Y.A. Kuznetsov, V.V. Goncharenko and L.V. Kalashnikova	198
The Effect of the Deformation Method of the Billets on Mechanical Properties of	
Molybdenum Bars and Wire S. Gorbatyuk, D. Efremov, S. Albul and N. Kirillova	204
Search for the Evaluation of 'strength-plasticity' Relation in Constructional Steel V. Volchuk, S. Ivantsov, I. Tiutieriev and A. Fortyhin	211
Viscoelastic Resistance of the Surface Layer of Steel Products to Shock Attack of a Spherical Pellet A. Goryk, S. Koval'chuk, O. Brykun and R. Chernyak	217
Analysis of the Bearing Capacity of Adhesive Joint of Honeycomb Cores of Sandwich Structures with the Continuous Adhesive Layer	
A. Kondratiev, O. Prontsevych and T. Nabokina	228
Austenite Transformation Behavior and Mechanical Properties of Constructional V, Nb-Alloyed TRIP-Assisted Steel	
R. Kussa, I. Kushchenko, V. Andilakhai, I. Petryshynets, V. Efremenko and V. Zurnadzhy	241
Modeling the Optimal Composition of Structural Epoxy Composites Filled with Dispersed Metal Waste	
V. Lebedev, T. Tykhomyrova, O. Shestopalov, O. Troshin and T. Melnik	250
Influence of Scale Factor on Structuring of Epoxy Polymer Products under the Action of Thermal Energy	257
V. Kashytskyi, P. Savchuk, V. Malets, O. Sadova and I. Boiarska  Assessment of Hydroabrasive Wear Resistance of Construction Materials with Functional	257
Coatings, which are Formed by Resource-Saving and Environmentally Friendly Technologies	
V. Tarelnyk, I. Konoplianchenko, O. Gaponova and B. Sarzhanov	265
Material Science Aspects of Alloy Modification by Nanocompositions of Plasma-Chemical Synthesis	
V. Bolshakov, N. Kalinina, D. Hlushkova, I. Kirichenko, O. Voronkov and L. Kostina	278
Profitability of Production of Stainless Steel + Zirconium Metals Combination Adapters A.A. Shapoval, V.V. Drahobetskyi, I. Savchenko, A. Gurenko and O. Markov	285
High-Copper Cast Irons for the Products of Tribotechnical Applied M. Dmytriyuk, D. Husachuk, I. Parfentieva and Y. Feshchuk	292