

Table of Contents

Preface

Chapter 1: Composite Materials and Structures

Mechanical Properties and Hydrophilicity of High-Density Polyethylene/Attapulgite Composites	
Z.L. Ma, J.C. Chen, C.H. Tsou, Y.M. Wang, X.Y. Tian and C. Gao	3
The Mechanical and Thermal Properties of MWCNT/ZnO/Polyethylene Composites	
X. Li, L. Yuan, Y.J. Zhang, Y.L. Yao, C.H. Tsou and Y.L. Sun	9
Cellulose Nanofibers/Polycarbonate Nanocomposite	
Y.F. Shih, Z.Z. Lai, W.L. Tsai, J.Y. Xu and N.Y. Wu	15
Synthesizing Aluminum Matrix Composites by Combining a Powder Metallurgical Technique and an <i>In Situ</i> Method	
R. Apakashev, M. Khazin and S. Krasikov	20
Failure Analysis of Multi-Layered Thick-Walled Composite Pipes Subjected to Torsion Loading	
T.Y. Wang, M. Menshykova, O. Menshykov and I. Guz	25
Dynamic Behavior Analysis of the Sandwich Beam Structure with Magnetorheological Honeycomb Core under Different Magnetic Intensities: A Numerical Approach	
U. Sharif, B.B. Sun, P. Zhao, D.S. Ibrahim, O.O. Adewale and A. Zafar	31

Chapter 2: Materials Processing and Manufacturing

Micro Electrical Discharge Machining Thermal Effect on Micro-Cracks Generation on Silicon Material	
X.Z. Song	41
Influence of Dressing Parameters on Roundness Tolerance in Cylindrical External Grinding SKD11 Tool Steel	
T.T. Nguyen, X.T. Hoang, K.K. Bui, N.H.T. Tran, N.A. Tuan and V.N. Pi	50
Study on the Influence of Amplitude on Ultrasonic Assisted Grinding of Hard and Brittle Materials	
X.Z. Li, B. Dai, J.K. Xu, L. Tong, M.X. Wang and S. Wang	57
Experimental Research on Surface Roughness of Ultrasonic Assisted Grinding on 7075 Aluminum Alloy	
S. Wang, L. Tong, G.J. Chen, M.X. Wang, B. Dai and J.K. Xu	62
Fatigue Property of Welded T-Shaped Joints Using the Structural Stress Method	
H.B. Yang, P. Wang and H.L. Qian	68
Study the Surface and Chip Formation of Wood Materials by Milling Method	
N.H. Loc and T.Q. Hung	74

Chapter 3: Functional Materials and Structural Metals

Synthesis of Samarium Cobalt Oxide Nanosheets and Nanoflowers on Nickel Foam via Electrochemical Route	
L.P.M. Buizon and M.C. Marquez	85
Characterization and Hydrogen Storage Capacity Analysis of Dip Coated Lithium Aluminium Hydride Thin Films	
C. Choawarot, V. Siriwongrungson, J. Hongrapipat, S.S. Pang and M. Messner	90
The Study of Chitosan Solution Coating on Water Barrier Property of Seedling Paper Bag Made from Water Hyacinth	
N. Khamsao, K. Waengwan, S. Konchai, P. Patthong, B. Phadungchob, S. Kruawan, N. Khiewbanyang and T. Wutisart	97

New Formulation of TiO₂- ZnO Slurry for Facial Foundation Sunscreen Cream Application	103
N. Pijarn, W. Jankasemsook, S. Suwantha and J. Intaraprasert	
Factors Influencing Dephosphorization of Low Carbon Steel in Converter	111
Z. Liu, S.S. Cheng and L. Wang	
A Review of Corrosion Resistance Alloy Weld Overlay Cladding Material for Geothermal Applications	120
R.G. Tayactac and E.B.O. Ang	
Cytotoxicity of Ti/SS316/Mg Particles on Human Osteoblasts	128
N. Wang, S.T. Dheen, J.Y.H. Fuh and A.S. Kumar	
Stimulated Axion-Like Bipolariton Generation in the Globular Photonic Crystal	134
V. Filatov, V. Gorelik and S. Pichkurenko	

Chapter 4: Building Materials

Sustainable Construction through Characterization of PET Bricks in Urban Areas	143
J. Castro, Z. Chávez, C. Pool, A. Amarillo and M. Chauca	
Effects of Black Scoria on Mechanical Properties and Thermal Insulation Properties of Building Materials	151
S. Alraddadi	
Prototype of Prefabricated Brick with Special Passes for Functional and Safe Electrical and Sanitary Installations on Confined Masonry	158
A. Vera, R. Rosales and M. Chauca	
Sustainable Local Materials: A Study of Adobe Bricks in Saudi Arabia	163
H. Azouqah, N. Alomar, L. Kaadan, M. Sonbul, H. Abdulaziz and W. Labib	
Palm Kernel Ash and Eggshell Ash as Partial Replacement of Cement in Interlocking Brick Production	174
G. Vasudevan and H.T. Cong	
Palm Kernel Shell as Partial Coarse Aggregate Replacement in Asphalt Mixture: Optimum Binder Content and Volumetric Properties Investigation	179
S.Z.M. Asri, F.H. Khairuddin, C.P. Ng, N.A. Misnor, N.I.M. Yusoff and A.N.H. Ibrahim	
Physical Properties of Sustainable Concrete Bricks with Glass and Polyethylene Terephthalate Scales Wastes as Replacements for Coarse Aggregate	186
F. Rosell, J.C. Nieto, R.J. Cuicapuza, L.M. Isla, V.C. Valenzuela, J.T. Rivera, R.V. Salazar and N. Moggiano	

Chapter 5: Strength and Load-Bearing Capacity of Structure Members of Buildings

Numerical Simulation of Steel Concrete Composite Floor System	195
M.M.H. Talukder, M.M. Moura, A. Singha and M.S. Rahman	
Strength Analysis of Single-Symmetry Ratio for Single-Symmetry I-Beam	202
W.T. Hsu, K.Z. Ho, Y.X. Liu and S.T. Chung	
Modeling the Shear Strength of FRP-Strengthened Rc Beams Using Artificial Neural Networks	207
N. Alrouh, M. Maalej and S. Barakat	
Ultimate Shear Strength of Component Model of Composite Beam with Perfobond Shear Connector	214
K. Suzuki, A. Suzuki and Y. Kimura	
Axial Capacity Prediction of Concrete-Filled Steel Tubular Short Members Using Multiple Linear Regression and Artificial Neural Network	220
M.N. Uddin, L.Z. Li, R.K.M. Khan, F. Shahriar and L.W.T. Sob	