

Table of Contents

Preface

Chapter 1: Functional Materials and Semiconductors

Influence of Substrate Rotational Speed on the Structural and Optical Properties of Sputtered Gd-Doped ZnO Thin Films

N.A. Raship, S.N.M. Tawil, N. Nayan, K. Ismail, A.S. Bakri and Z. Azman 3

Evidence of Hole Self-Doping due to Excess Oxygen Addition in Polycrystal LaMnO₃

H. Kobori, M. Sogabe, A. Hoshino, A. Yamasaki, T. Taniguchi and T. Shimizu 9

Synthesis of Ti₃C₂ Mxene through *In Situ* HF and Direct HF Etching Procedures as Electrolyte Fillers in Dye-Sensitized Solar Cell

N.A. Adibah, S.N. Azella and M.F.A. Shukur 15

Gel-Polymer Electrolytes for Sodium Batteries - Raman and Electrochemical Impedance Spectroscopic Studies

G. Menisha, J.H.T.B. Jayamaha, K. Vignarooban, G. Sashikesh, K. Velauthamurthy, H.W.M.A.C. Wijayasinghe and M.A.K.L. Dissanayake 21

Chapter 2: Computational Materials Science

A Data Mining Approach to Investigate the Carbon Nanotubes Mechanical Properties via High-Throughput Molecular Simulation

Y. Xiang and G. Yamamoto 29

Deep Neural Network for Dielectric Properties Prediction of PVDF/BaTiO₃ Nanocomposites for Flexible Capacitors

B. Zazoum and A. Bachri 37

Chapter 3: Alloys and Metallic Compounds

Influences of the γ' Phase on the Mechanical Properties of a Nickel-Based Single Crystal Superalloy

X.Y. Wang, M. Li and Z.X. Wen 45

Effects of Oxide Inclusions on Texture of 1235 Al-Alloy after Deformation

W.D. Yan, G.S. Fu, W.Q. Lai, H.L. Chen, Y. Li, L. Xiao and X.M. Zhou 53

Influence of Nickel on the Microstructure and Mechanical Properties of Nodular Cast Iron

W. Siripongtana and R. Canyook 61

Chapter 4: Polymers and Composites

Preparation of a Rice Husk Composite and Effects of Cold Pressing on the Flexural Strength Properties

O.S. Santiago, E. Aguirre Maldonado and C. Balcázar Arciniega 69

Enhancement of the Compressive Strength of 3D-Printed Polylactic Acid(PLA) by Controlling Internal Pattern

A. Mustakangas, A.S. Hamada and A. Järvenpää 75

Scaffolds Materials from Gellan Gum Incorporated Ball Clay as Dressing Materials

N.M. Hamdan and K.A. Mat Amin 83

Chapter 5: Biotechnologies and Technologies for Environmental Engineering

Recycling Technology for Waste Glass Fiber Reinforced Plastics (GFRP) Using Pyrolysis with NaOH	91
M. Miyazawa and T. Wajima	
Synthesis of X- and A-Type Zeolites from Waste Stone Powder and Aluminium Dross Using Alkali Fusion	97
T. Wajima	
Development of Molecular Imprinting Polymer Nanofiber for Aflatoxin B1 Detection Based on Quartz Crystal Microbalance	
M.D.D. Susilo, T. Jayadi, A. Kusumaatmaja and A.D. Nugraheni	103
Reduction of Free Fatty Acid in Low Free Fatty Acid of Mixed Crude Palm Oil (LMCPO): Optimization of Esterification Parameters	
J. Thawornprasert, W. Duangsuwan and K. Somnuk	111

Chapter 6: Building Materials

Determining Optimum Carbon Nanotubes Content for Asphalt Mixture in Road Pavements	121
V.B. Le and V.P. Le	
Effects of Silica Fume Addition on Properties of Fresh Mortar	127
M. Takigawa, H. Koyama, Y. Uno and S. Date	
Assessment of Recycled Toilet Bowl Wastes as Pozzolanic Materials: Material Characterization and Performance of Mortar Mixtures	
A. Aitbayeva, C.S. Shon, D.C. Zhang and J.R. Kim	135
Effects of Waste Soda-Lime Glass Sand and Glass Fiber on Physical and Mechanical Properties of None-Autoclaved Aerated Concrete	
I. Mukangali, C.S. Shon, K. Kryzhanovskiy, D.C. Zhang and J.R. Kim	141
Influence of Carbon Nanotubes on Traditional Material	
B. Zúñiga-Torres, F. Hernández-Olivares, F. Fernandez-Martinez, A. Zúñiga-Suárez and B.E. Noboa Ruiz	147
Innovative Materials for Sustainable Construction	
B. Zúñiga-Torres, R. Correa-Jaramillo, F. Hernández-Olivares, F. Fernandez-Martinez, A. Zúñiga-Suárez, I. Briceño-Tacuri and L. Loaiza-Jiménez	155