

Table of Contents

Preface

Chapter 1: Polymers and Composites

Impact Resistance and Fracture Surface of Al6061 Hybrid Composites Reinforced by Fly Ash and Calcium Oxide

O. Kosasang, A. Kumhakot, R. Konghakot and S. Talangkun 3

Preparation and Properties of Graphene / Poly (Ethylene Terephthalate) Composite Fibers

T. Samsaray and P. Potiyaraj 9

Mechanical Properties of 3D Printed Carbon Fiber Composite

N. Saithongkum and T. Karuna 15

Experimental Study of Fiber Orientation Effect on Frictional Material Properties and Tribology Performance

M. Kamonrattanapisud and T. Karuna 25

Chapter 2: Technologies in Environmental Engineering and Chemical Production

Octahedral Layered Birnessite (OL) Supported Ag Catalysts: Characterization and Catalytic Oxidation of CO

M.Y. Chen, N. Dong, Q. Ye and Z.D. Fu 35

Bioleaching Solutions Used for the Nanoparticles Biosynthesis for Uranium and Arsenic Immobilization

A. Pawlowska and Z. Sadowski 45

Synthesis and Characterization of Sodium Carboxymethyl Cellulose/Sodium Alginate/Hydroxypropyl Cellulose Hydrogel for Agricultural Water Storage and Controlled Nutrient Release

R.G. Garduque, B.J. Gococo, C.A. Yu, P.J. Nalzaro and T. Tumolva 51

Synthesis and Characterization of Ionically-Crosslinked κ - Carrageenan/Sodium Alginate/Carboxymethyl Cellulose Hydrogel Blends for Soil Water Retention and Fertilizer Release

J. De Guzman, K. Dela Peña, J. Ytac Dorothy and T. Tumolva 59

Novel Cathodes Consisting of $\text{La}_3\text{Ni}_2\text{O}_{7+\delta}$ Mixed with $\text{Ba}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.8}\text{Fe}_{0.2}\text{O}_{3-\delta}$ for Proton-Conductive Solid Oxide Fuel Cells (p-SOFCs)

H.G. Ding, W. Sun, J.C. Lin, S.W. Lee, J.S.C. Jang, I.M. Hung, K.T. Hsu and K.R. Lee 67

Chapter 3: Building Materials

Comparative of the Use of Carbon and Steel Fiber to the Mechanical Properties of Self Compacting Concrete

Jonbi, R.N. Arini, M. Permatasari and P.H. Simatupang 75

Mechanical Efficiency and Biomechanical Performance of Innovative Sandwich-Like Composite Wall Biopanels - A Structural Alternative for Constructions in High-Risk Seismic and Windy Regions

O.M. González, P.M.A. García, Z.H.L. Barrigas and B.N.S. Andino 81

Chapter 4: Steel and Alloys, Metallurgical Technologies and Technologies of Materials Processing

Kinetic Study on Microwave Magnetizing Roast of Fe_2O_3 Powders

L. Wang, L.B. Kong, P.M. Guo and J. Li 91

Microstructure and Properties Formed at Different Cooling Rates of Low Carbon Alloy Steel for Welding Wire Production	99
N. Koptseva, Y. Efimova, M. Chukin, A. Pesin, N. Tokareva and A. Ishimov	
Multiscale Simulation of the Stress-Strain State of Low Carbon Steel Strip Processed by Asymmetric Rolling	107
D. Konstantinov, A. Pesin and D.O. Pustovoytov	
Numerical Modelling and Development of New Technical Solutions in Metallurgy and Material Processing	113
A. Pesin, P. Tandon, D.O. Pustovoytov, A. Korchunov, I. Pesin and A. Dubey	
Using 2D/3D FEM Simulation to Determine Drawing Force in Cold Drawing of Steel Tubes with Straight Internal Rifling	121
M. Necpal, M. Kapustova and M. Martinkovič	
Study of Impact Velocity on Residual Stress and Surface Hardness of SKD11 in Shot Peening Process	127
P. Chupong and T. Karuna	

Chapter 5: Methods of Calculation, Identification and Detection

Research on Shielding Effectiveness Calculation Method of Electromagnetic Shielding Materials	137
N. Mei, X.Y. Wang, X. Wang, H.F. Li, M.H. Wei, J. Liu and S. Shi	