

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

Chapter 5: Methods of Calculation, Identification and Detection

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