

Table of Contents

Preface

Chapter 1: Nanomaterials for Applications in Sensor Devices

Direct Detection of Green-Synthesized Fe₃O₄ Magnetic Nanotag Using Double-Chip Configuration of Commercial Giant Magnetoresistance Sensor	
H. Ardiyanti, N. Mabarroh, N.A. Wibowo, N.I. Istiqomah, M.A.U. Absor and E. Suharyadi	3
Detection of Green-Synthesized Fe₃O₄/ Chitosan Using Spin Valve GMR Sensor with Wheatstone Bridge Circuit	
S. Garcia, N. Mabarroh, R. Cuana, H. Ardiyanti, N.I. Istiqomah and E. Suharyadi	9
Enhanced Magnetic Properties of Gd-Doped ZnO by Varying the Gd Concentration via Co-Sputtering Technique	
N.A. Raship, S.N.M. Tawil and N. Nayan	15
Green Synthesis of Magnetite Nanoparticles Using <i>Moringa oleifera</i> and their Electro-Optic Surface Plasmon Resonance Properties	
S. Wahyuni, M. Riswan, R.M. Tumbelaka, R. Cuana, N.I. Istiqomah and E. Suharyadi	21

Chapter 2: Preparation and Properties of Advanced Composite Materials

Evaluation of Marine Atmospheric Environmental Adaptability of 3238A/CCF300 Composite Material	
J.K. Wang, J.M. Wang and M. Liu	29
Enhanced the Bagasse Corrugated Fiber Composite Roofing Properties with Adhesive Substances	
P. Bharuedha, S. Prayoon and B. Kittisak	35
Flexural Strength of Kenaf Fibers/Epoxy Bio-Composites: Content of Kenaf Fiber, Curing Times and Curing Temperatures	
H. Suherman, I. Vatra, T.A. Suherman and I. Irmayani	41
Comparative Examination of Cellulose Nanosphere from Corn Husk and Rice Straw	
R.C. Tilwani, P.A.N. de Yro and H. Nakano	47

Chapter 3: Additive Manufacturing

Mechanical Properties of FDM Fabricated PLA Parts: Effect of 3D Printing Parameter Optimization Using Taguchi Method	
C.E. Alviar and B.A. Basilia	57
Evaluating the Accuracy of Finite Element Analysis in Predicting Mechanical Properties of Additively Manufactured Parts	
C. Promae, S. Das and A. Nassehi	65
Development of 3D Printing Filaments from Recycled PLA Reinforced with Nanoclay	
B.A. Basilia, J.N. Concepcion and J.J. Prila	73
3D-Printed Polymer Spare Parts for Various Applications	
J.R.C. Dizon	79
Towards Smart Additive Manufacturing: Cost and Component Complexity	
F. Tarlochan and S. Alsendibad	85
Effect of Nano-Alumina (Al₂O₃) Loading on the Thermo-Mechanical Properties of Poly(Lactic Acid) for Fused Deposition Modeling 3D Printing Applications	
M.S. Tolentino, B.A. Basilia and P.A.N. de Yro	91
Fatigue Resistance Assessment of WAAM Carbon Steel	
M. Hietala, T. Rautio, M. Jaskari, M. Keskitalo and A. Järvenpää	99

Chapter 4: Friction Welding

Studying Effects of Heat Treatment on Friction Stir Welding of Al 7075

D.M. Nhat, P.Q. Trung and B.D. Khanh

109

A Study on Optimizing the Parameters of the Heat Treatment Process on Rotary Friction Welding of Aluminum Alloy A6061

P.B.H. Nam, P.Q. Trung and B.D. Khanh

117

Chapter 5: Materials for Water and Wastewater Treatment

Graphitic Carbon Nitride (g-C₃N₄) Microrods and Nanosheets Photocatalysts Immobilized on Water Hyacinth Cellulose Sponge for Photodegradation

B. Pattanasiri and S. Sangjan

127

Effects of Cupric Ion Adsorption onto the Modified Pineapple Pulp as a Biochar Adsorbent

P. Charnkeitkong and S. Sripiboon

137

Removal of Copper(Cu) from Wastewater Using Modified Recycle Carbon Black (RCB) Waste Tyre

M.A.I. Nordin, N.A.H. Ab Aziz, U.F. Md Ali, A.A. Ahmad and M.I.H.M. Dzahir

143

Effects of Halloysite Nanotube (HNT) on the Cd²⁺ Adsorption Capacity of Cellulose Acetate (CA) Thin Film Membranes

M.J. Llana, K.J.J.L. Tabucan, J.A.M.C. Cosico, P.E.C. Maglalang and J.C. Millare

149

Fabrication of Polysulfone - Zeolite Nanocomposite Membrane for Water and Wastewater Treatment Applications

J.C. Millare, J.C.T. Enriquez, L.K.M. Domingo and V.U. Lagura

157

Structural and Magnetic Behavior of MFe₂O₄ Nanopowders for Water Treatment

G. Sugurbekova, E. Sugurbekov, G. Demeuova, A. Gabdullina and R. Kudaibergenova

163