

Table of Contents

Preface

Chapter 1: Polymers and Composites

Numerical Analysis of Hybrid Fibre-Reinforced Concrete Beam-Column Joint P. Das and L.I. Singh	3
Experimental Study on Mechanical, Chemical and Acoustical Properties of Waste Tea Leaf Fiber Reinforced Epoxy Composites L. Prabhu, S. Sathish, S. Gokul Kumar, S. Dharani Kumar, K. Namburigha, A. Naveen Kumar, M. Ragul Kumar, P.M. Ravishankar, S.P. Saravanagowri and K.M. Shobika	13
Study of Stir Casting and Microstructure of Al-B₄C MMCs U. Annigeri and S.C. Simha	27
Investigation on Environmentally Polluted Water Hyacinth with Banana Fibre Reinforced Composite Absorption Properties A. Ajithram, J.T. Winowlin Jappes, S. Perumal, S.D. Kumar and M. Manoharan	33
Optimization Techniques in Compression Moulding: A Comprehensive Review R. Sahu, M.K. Singh, G. Singh, N. Agarwal, A.S. Yadav, P. Chincholkar, J. Malviya and R. Bokade	41
Micromechanical Analysis of GFRP Composite with Micro-Level Defects R. Chinthamaneni, S. Chavan and B.M. Vallabhaneni	49

Chapter 2: Additive Manufacturing

Investigation of Polylactic Acid 3D Printed Hollow and Thin-Walled Structures through Topology and Mechanical Properties Optimization Using Integration of Taguchi Method and Principal Component Analysis N.A.A. Abdul Rauf, N.M. binti Mehat and S. Kamaruddin	67
Interlaminar Adhesion Study of Fused Filament Fabrication (FFF)-Printed Soft and Rigid Bilayer Structure with Composites G.L. Goh, S. Lee, B.S. Han and W.Y. Yeong	73

Chapter 3: Materials and Technologies for Environmental Engineering

Polymer-Based Metal-Organic Framework Composite Beads: Optimization for Methyl Orange Adsorption N. Saptorsantos, E.C.R. Lopez, K.C. Go, K.D. Taclobao, H.L. Medrano and J.V.D. Perez	83
PAN/PVP/CD-MOF Composite Beads for the Removal of Methylene Blue and Congo Red in Water E.C.R. Lopez and J.V.D. Perez	91
Optimization of Chitosan - MIL-101(Fe) - Polyethyleneimine MOF-Based Composite Beads for Methyl Orange Removal N. Saptorsantos, I.J.C. Dela Cruz and J.V.D. Perez	101
Fabrication of Paper-Based Silver Nanoparticle (AgNP) Sensors for Smartphone-Based Colorimetric Detection of Cu (II) in Water M.A.D. Gomeceria, M.L.I.C. Miranda, E.C.R. Lopez and J.V.D. Perez	109

Chapter 4: Materials for Opto- and Microelectronics

Low-Temperature Atmospheric Pressure Plasma Jets and their Applications in the Surface Activation of some Polymeric Substrates for Advanced Electronic Packaging S.Y. Hsu, C.M. Tseng and J.H. Hsieh	121
Blue-Emitting SrLaAlO₄: Ce Phosphors Obtained by Combustion Synthesis N.O. Etafo, C.E.R. Garcia, R.C. Torres Ramírez, E. Viesca-Villanueva and J.L. Fraga Almanza	131

Photoluminescence of Erbium-Doped ZnO Nanostructures E.V. Hernández, C.E.C. Montufar, M.A.C. Ramírez and F.M. Hernández	139
---	-----

Chapter 5: Chemical Synthesis and Chemical Production

The Effect of Three Factors Interaction on the Size Distribution of White Sugar Crystals in the Batch Vacuum Pan H. Halomoan, S. Nurkhamidah and A. Altway	147
Study on Adsorption of Diesel Molecules on MoS₂ and NiMoS Catalysts Y.K. Qu, X.G. Zhao, L.X. Wang and H.F. Li	159