## **Table of Contents**

## **Preface**

## **Chapter 1: Materials for Electronics and Energy Storage**

Rare Earth Based Nanocomposite Materials for Prominent Performance Supercapacitor: A	
S.S. Nandi, V. Adimule, S.A. Kadapure and S.S. Kerur	3
Study on Optical Properties of Cu-MOF Nano Metal Oxide Composites M. Challa, M.R. Ambika, S.R. Usharani, B.C. Yallur and V. Adimule	19
Role of Graphene and Graphene Oxide Applications as Optical Biosensors in Pandemic G.B. Bagihalli, N.M. Shaikh and S.N. Unki	29
Optical Graphene for Biosensor Application: A Review P.M. Maya, S. Batakurki, V. Adimule and B.C. Yallur	51
Electrochemical Sensor Applications of Nanoparticle Modified Carbon Paste Electrodes to Detect Various Neurotransmitters: A Review R.S. Mahale, S. Vasanth, H. Krishna, R. Shashanka, P.C. Sharath and N.V. Sreekanth	69
Nanotechnology Adds Value to Optical and Sensor Characteristics of the Composite	
Material R. Mehrotra, S.N. Shukla and P. Gaur	89
Chapter 2: Materials and Technologies for Environmental Protection	
Magnetic Susceptibility of Powders and Magnetic Particles (Modified Inclusions of Iron Oxides) Carbon Sorbents	
A.A. Sandulyak, M.N. Polismakova, D.A. Sandulyak, A.V. Sandulyak, R.A. Repetunov, A.Y. Kurmysheva and M.A. Makhiboroda	103
Encapsulation of Watermelon Rind Extract in Chitosan Microcapsules: Analysis of Physical Properties and Flavonoid Release Ability V.A.S. Augustia, Kamariah, F. Mulia and D.S. Nurani	113
Photocatalytic Degradation of Rhodamine B Dye by Nanocomposites: A Review K.S. Kiran, D. Ramesh and R. Shashanka	119
Modified Auto-Combustion Synthesis of Mesoporous TiO <sub>2</sub> -NiO Nanosheets for Selective Adsorption and Photodegradation of Alizarin Yellow Dye under Direct Sunlight and	
Reaction Kinetic Study N. Padmavathy, B. Narasimhamurthy, M. Manjunatha and K.H. Hemakumar	131
Chapter 3: Technologies of Structural Materials Processing	
The Effect of Technological Damage on the Properties and Reliability of Construction Materials and Structures	
V. Dorofeev, I. Myronenko and N. Pushkar	149
An Approach to Measure Tool Wear through Image Processing in Incremental Sheet Metal Forming M. Oraon	157
Single Point Incremental Forming as a Cost-Effective Sheet Forming Process for Small	137
Batch Production N. Kosimov, B. Krishna Singh, S.J. Li, W.N. Chen and D.W. Jung	169