

# Table of Contents

## Preface

### Multifunctional Nanostructures: Synthesis and Applications

S. Chidambaram, K. Baskaran, S.J. Samuel, B. Pari, A.R. Sujatha and S. Muthusamy

1

### A Review on Application of Multifunctional Mesoporous Nanoparticles in Controlled Release of Drug Delivery

P.N. Dave and L.V. Chopda

17

### Emerging Applications of Nanoscience

S. Chaturvedi and P.N. Dave

25

### Modeling and Simulation of Plasmonic Nanoparticles Using Finite-Difference Time-Domain Method: A Review

R. Rajeswari and R. Jothilakshmi

33

### Design and Development of Ferrite Composite Film Electrode for Photoelectrochemical Energy Application

R. Dom, G.S. Kumar, H.G. Kim, S.V. Joshi, A.S. Chary and P. Borse

45

### Synthesis, Surface Acidity and Photocatalytic Activity of $\text{WO}_3/\text{TiO}_2$ Nanocomposites – An Overview

S. Prabhu, A. Nithya, S.C. Mohan and K. Jothivenkatachalam

63

### Chitosan Based Nanocomposite Materials as Photocatalyst – A Review

A. Nithya, K. Jothivenkatachalam, S. Prabhu and K. Jeganathan

79

### Effect of Substrate Temperature on the Structural and Electrochromic Properties of Mo Doped $\text{WO}_3$ Thin Films

V. Madhavi, P. Kondaiah and S. Uthanna

95

### Electroreduction of Oxygen Using Platinum Nanoparticles Supported on Carbon/Conductive Bipolymeric Nanocomposite Film for Polymer Electrolyte Membrane Fuel Cells

B. Narayananamoorthy and S. Balaji

107

### Cadmium Zinc Sulphide Nanoparticles as Sensing Material for Microcontroller Based Ammonia Sensor: Pilot Study

M.A. Haque, S. Mahalakshmi and R. Nanwal

119

### Electrochemical Impedance Spectroscopic Study of Anatase $\text{TiO}_2$ Nanoparticle

L.K. Singh, T. Karlo and A. Pandey

127

### Quenching of Silver Nanoparticles

E. Thanikaivalan and R. Jothilakshmi

135

### Structural, Morphological, Vibrational and Electrical Studies on Zn Doped Nanocrystalline $\text{LiNiPO}_4$

S. Karthickprabhu, G. Hirankumar, A. Maheswaran, R.S. Daries Bella and C. Sanjeeviraja

145

### Structural, Electrical and Dielectric Properties of DC Reactive Magnetron Sputtered $\text{ZrO}_2$ Films for Metal-Oxide-Semiconductor Devices

P. Kondaiah and S. Uthanna

155