

Table of Contents

Editorial and Organizing Committee

I. Preparation and Characterization of Nanostructured Materials

Co-Ag Nanomaterial – Synthesis, Structure and Magnetic Properties	3
Kalavathy Santhi, T.A. Revathy, V. Narayanan and A. Stephen	
Effective Removal of Nickel(II) Ion by Using Nano Fe₃O₄	7
G. Kanthimathi, P. Kotteeswaran and M. Kotaisammy	
Facile Synthesis of Gold (Au) Nanoparticles Using <i>Cassia auriculata</i> Flower Extract	12
J. Dhayananthaprabhu, R. Lakshmi Narayanan and K. Thiagarajan	
On the Debye-Waller Factor and Debye Temperature of Dendrite-Shaped PbTe	17
R. Karunamoorthi, P. Indra Devi and K. Ramachandran	
Polymer Assisted Synthesis and Characterization of Fine ZnWO₄	22
A. Santhosh Kumar, K.K. Nagaraja and H.S. Nagaraja	
Preparation and Characterization of Copper Dendrite Like Structure by Chemical Method	27
C.K. Senthil Kumaran, S. Agilan, Dhayalan Velauthapillai, N. Muthukumarasamy, M. Thambidurai, A. Ranjitha, R. Balasundaraprabhu and T.S. Senthil	
Preparation and Characterization of Tungsten Trioxide (WO₃) Thin Films	32
R. Lavanya, G. Saroja and V. Vasu	
Preparation of Hollow Glass Microspheres (HGMs) from Amber Coloured and Borosilicate Glass Frits	37
Sridhar Dalai, S. Vijayalakshmi and Pratibha Sharma	
Sensitivity Studies on Vacuum Deposited V₂O₅ Thin Films	42
A. Dhayal Raj, P. Suresh Kumar, N. Sabari Arul, D. Mangalaraj and A.A. Irudayaraj	
Synthesis and Characterization of Fe and Fe₂O₃ Nanoparticles	46
P. Peula Kumari, Rachel Oommen, C.K. Senthil Kumaran, M. Thambidurai, N. Muthukumarasamy and S. Agilan	
Synthesis and Characterization of Nano CuO-ZrO₂ Mixed Oxide	50
R.R. Muthuchudarkodi and C. Vedhi	
Synthesis and Characterization of Reduced Graphene Oxide	56
C.R. Minitha and R.T. Rajendrakumar	
Structural and Optical Characterization of Pure and Mn²⁺ -Doped ZnS Nanoparticles Prepared by Solvothermal Method	61
T.E. Manjulavalli and A.G. Kannan	
Thermal Studies on SnO₂ Nanoparticles	67
N. Rajamanickam, R.N. Mariammal and K. Ramachandran	

II. Structural and Optical Properties of Nanocrystalline Materials

Characterization of TiO₂ Thin Films Deposited by SILAR Method	75
Rachel Oommen, P. Usha Rajalakshmi, R. Saranya, S. Saranya and A. Sudha	
Effect of pH Value on Structural and Optical Properties of Transparent Nano-Crystalline TiO₂ Films Prepared by Sol-Gel Dip-Drive Coating	80
K. Sakthivel and T. Venkatachalam	
Effect of Temperature on the Morphology and Optical Properties of ZnO Nanoparticles Prepared by Forced Condensation Method	86
P. Suresh Kumar, A. Dhayal Raj, R. Suresh and D. Mangalaraj	
Hydrothermal Synthesis of Flower-Like ZnO Nanostructures and their Optical Properties	91
K. Sambath, M. Saroja, M. Venkatachalam, K. Rajendran and K. Jagatheeswaran	
Influence of Annealing Temperature on Nanocrystalline ZnO Thin Films Prepared by Sol-Gel Dip Coating Method	97
K. Sivakumar, V. Senthil Kumar, M. Thambidurai and T.S. Senthil	

Investigation on the Structural and Optical Properties of Nanocrystalline TiO₂ Thin Films	
A. Ranjitha, N. Muthukumarasamy, S. Agilan, M. Thambidurai, R. Balasundraprabhu and A. Chitrakala	103
Synthesis and Characterization of Nanocrystalline TiO₂ Thin Films by Sol-Gel Dip Coating Method	
N. Gokilamani, N. Muthukumarasamy and M. Thambidurai	108
Synthesis and Crystallographic Study of Co Doped ZnO Nano-Sized Powders by Co-Precipitation Method	
V.D. Mote and B.N. Dole	113
Structural and Optical Characterization of Chemically Deposited Cuprous Oxide (Cu₂O) Thin Film	
P. Usha Rajalakshmi and Rachel Oommen	118
Structural and Optical Properties of Thermally Evaporated BiSb₂S₃ Thin Films	
K. Kandaswamy, P. Chirstopher Selvin, B. Nalini, I. Mohamed Abdulla and K.P. Abhilash	123
Structural and Optical Properties of Thermally Evaporated CdTe Film	
D. Geethalakshmi, N. Muthukumarasamy and R. Balasundaraprabhu	131
Structural Properties of PbS Nanoparticles Prepared by Photo Chemical Synthesis	
S. Kanimozhi, D. Vishnushankar and V. Veeravazhuthi	136
Structural, Optical and Morphological Studies on Nanostructure ITO Thin Films	
R. Balasundraprabhu, N. Muthukumarasamy, E.V. Monakhov and B.G. Svensson	140
Deposition of CdSe Films by Pulsed Galvanostatic Electrodeposition and their Properties	
K. Ananthi, S. Dhanpadian, N. Muthukumarasamy, K. Thilagavathy and V. Chitra	144
Deposition and Characterization of Nanocrystalline Al₂O₃ Thin Films by DC Reactive Magnetron Sputtering	
S. Prasanna, P. Biji, G. Mohan Rao, M.D. Kannan and S. Jayakumar	149
Analysis of the Effect of Temparature on the Resistivity of Nanocrystalline La_{0.7} Ba_{0.3}MnO₃ Powders	
C. Seshendra Reddy, A. Sivasankar Reddy and P. Sreedhara Reddy	154
Structural and Optical Characteristics of Ni Doped ZnS Nanoparticles	
G. Murali, D. Amaranatha Reddy, R.P. Vijayalakshmi and R. Venugopal	159
Synthesis and Optical Properties of Annealed Cr Doped ZnS Nanoparticles	
D. Amaranatha Reddy, G. Murali, N. Madhusudhana Rao, R.P. Vijayalakshmi and B.K. Reddy	163
Investigation on the Effect of Dopant Concentration on the Change in Shape of ITO Nanoparticles - Prepared Using Alcoholysis Method	
M. Seetha, M. Thambidurai and D. Mangalaraj	168
Crystallographic & Electrical Properties of Pr Substituted Gd-123 Nanometre Sized High Temperature Superconductors	
V.R. Huse, V.D. Mote, Y. Purushotham, S.K. Dhar, S.S. Shah and B.N. Dole	172

III. Nanotubes and Nanowires

Comparative Study of Adsorption of O₂, CO₂, NO₂ and SO₂ on Pristine and Si-Doped Carbon Nanotubes	
M.R. Sonawane, B.J. Nagare, D. Habale and R.K. Shivade	179
Desorption Studies on Hydrogenated Single Walled Carbon Nanotubes Functionalized with Borane (BH₃)	
D. Silambarasan, V.J. Surya, V. Vasu and K. Iyakutti	185
Enhanced Photocatalytic Activity of Coinage Metal-Cadmium Sulfide Nanorod Composites under Sun Light Irradiation	
Rohit Singh and Bonamali Pal	189
Influence of Growth and Annealing Temperatures on the Properties of ZnO Nanorods Synthesized by Dip Coating Method	
P. Gowthaman, M. Saroja, M. Venkatachalam, J. Deenathayalan, N. Muthukumarasamy and T.S. Senthil	193
Mass Production of Carbon Nanofibers on Water Soluble Support	
R. Ravindra and B. Ramachandra Bhat	198
Nanorods of Cobalt Oxide: Study on its Morphology with Varied Sonication Time	
A. Alex John Thangapaul, V. Sherly Arpuda Kiruba, R. Nivea, T. Viji, K. Thiagarajan, A. Dhayal Raj and S. Vasanth Kumar	203

Optical and Structural Properties of ZnO Nanorods Prepared by Chemical Bath Deposition Method

- J. Deenathayalan, M. Saroja, M. Venkatachalam, P. Gowthaman, N. Muthukumarasamy, T.S. Senthil and S. Shankar 207

Synthesis and Characterization of Silver Nanowires

- S. Sugapriya, R. Sriram and S. Lakshmi 212

Synthesis and Characterization of ZnO Micro-Tubes

- K.S. Ranjith, B.S. Kruthika and R.T. Rajendrakumar 217

ZnO Nanorods by a Simple Two Step Process

- W. Bhagath Singh, Aleyamma Alexander, C.X. Joana May, Priscilla Mary, K. Thiagarajan, A. Dhayal Raj, R. Suresh and S. Vasanth Kumar 223

IV. Nanocrystalline Polymer Materials

Effect of Electron Beam Irradiation on the Mechanical and Electrochemical Properties of Plasticized Polymer Electrolytes Dispersed with Nanoparticles

- C. Vijil Vani, K. Karuppasamy, N. Ammakutty Sridevi, S. Balakumar and X. Sahaya Shajan 229

Effect of PEG on Structural and Magnetic Properties of Mn Doped ZnO Nanocrystals

- V.D. Mote and B.N. Dole 234

Electrochemical Synthesis and Characterization of Nano Poly(o-anisidine-co-ethyl 4-aminobenzoate)

- R. Sasikumar and P. Manisankar 239

Electrochemical Synthesis of Nanosize Polypyrrole in Presence of Aqueous Surfactant Solutions

- J. Anandha Raj, R. Sasikumar, M. Sethupathy, C. Vedhi and P. Manisankar 244

Optical and Structural Properties of PVP/Bi₂S₃ Nanoparticles by Chemical Method

- K. Kavi Rasu, D. Vishnushankar and V. Veeravazhuthi 248

Structural, Thermal and Optical Properties of PVP Capped ZnO Films

- T. Pandiyarajan and B. Karthikeyan 253

Synthesis, Characterisation and Voltammetric Behaviour of Pani-Clay (MMT) Nanocomposite

- R. Baby Suneetha and C. Vedhi 258

Synthesis and Electrochemical Studies of TiO₂ – Pani Nanocomposite

- P. Rajakani and C. Vedhi 263

Synthesis of Biodiesel from Neem Oil Using Mg-Al Nano Hydrotalcite

- R. Manivannan and C. Karthikeyan 268

Synthesis, Characterisation and Capacitive Behaviour of Poly(3,4-ethylenedioxythiophene)-Copper Oxide Nanocomposites

- A. Lakshmi, A. Emi Princess Prasanna and C. Vedhi 273

V. Nanostructured Materials for Biological Applications

Efficient Delivery of Dexibuprofen Using Nanocrystals

- N. Subramanian, S. Abimanyu, P. Chandra Sekar, M. Sivakumar, Yachamaneni Varun and J. Vinoth 281

Improved Oral Delivery of Rosuvastatin by Using Self Nanoemulsifying Drug Delivery System

- N. Subramanian, P. Chandra Sekar, S. Abimanyu, S.P. Sharavanan, R. Gayathri, A. Meenakshi and M. Nithyakalyani 286

Synthesis and Antibacterial Studies of Nano Structured Ag Thin Films

- C. Revathi, K. Rajavel, K.S. Ranjith and R.T. Rajendrakumar 291

Synthesis of Magnesium Oxide Nanoparticles by Wet Chemical Method and its Antibacterial Activity

- J. Suresh, Raja Gopal Rajiv Gandhi, S. Selvam and M. Sundrarajan 297

Synthesis of Silver Nanoparticles Using the Leaf Extract of *Vitex negundo* and its Anti-Bacterial Effect

- G. Bhavani, P. Muthuselvam and S. Geetha 301

VI. Sensors and Devices Using Nanostructured Materials

Characterization of Nano Scale PMMA Films Prepared by FDC Technique for FET Applications

B. Chandar Shekar, S. Sathish, B.T. Bhavyasree and B. Ranjith Kumar 309

Characterization of Nanochitosan Incorporated Solid Polymer Composite Electrolytes for Magnesium Batteries

N. Ammakutti Sridevi, K. Karuppasamy, C. Vijil Vani, S. Balakumar and X. Sahaya Shajan 316

Development of Multiwalled Carbon Nanotube Based Electrochemical Sensor for Reactive Azo Dyes

M. Valarmathi, A. Gomathi and P. Manisankar 321

Effect of Surface Morphology on the Performance of Natural Dye Sensitized TiO₂ Thin Film Solar Cell

T.S. Senthil, N. Muthukumarasamy, S. Agilan, R. Balasundaraprabhu and C.K. Senthil Kumaran 326

Fe₂O₃ and V₂O₅ Nanoparticles: A New Voltammetric Sensor

R. Suresh, K. Giribabu, L. Vijayalakshmi, A. Stephen and V. Narayanan 331

Nano Composite PVA-TiO₂ Thin Films for OTFTs

S. Sathish, B. Chandar Shekar and B.T. Bhavyasree 335

Photoelectrochemical Behaviour of Copper Indium Selenide Thin Films

V. Chitra, K. Ananthi and S. Vasantha 343

Rapid Synthesis of Ag Nanoparticles Using Henna Extract for the Fabrication of Photoabsorption Enhanced Dye Sensitized Solar Cell (PE-DSSC)

S.C.G. Kiruba Daniel, N. Mahalakshmi, J. Sandhiya, N. Kasi and S. Muthusamy 349

Sputtered Nickel Oxide Films for NO₂ Gas Sensors

A. Mallikarjuna Reddy, A. Sivasankar Reddy and P. Sreedhara Reddy 361

Studies on Nanostructure ITO Thin Films on Silicon Solar Cells

R. Balasundaraprabhu, E.V. Monakhov, N. Muthukumarasamy and B.G. Svensson 365

Synthesis of Cadmium Oxide and its Electrochemical Detection of Pollutants

K. Giribabu, R. Suresh, L. Vijayalakshmi, A. Stephen and V. Narayanan 369

Synthesis, Characterization and Photocatalytic Properties of TiO₂-SnO₂ Composite Nanoparticles

D. Nithyadevi and R.T. Rajendrakumar 373