

2nd International Conference on Nanomaterials and Technologies (CNT 2014)

Procedia Materials Science Volume 10

Hyderabad, India
17 - 18 October 2014

Editors:

P. Sarah

K. Venkateswarlu

ISBN: 978-1-5108-1237-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© by Elsevier B.V.
All rights reserved.

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact Elsevier B.V.
at the address below.

Elsevier B.V.
Radarweg 29
Amsterdam 1043 NX
The Netherlands

Phone: +31 20 485 3911
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

| | |
|---|------------|
| Preface to CNT 2014..... | 1 |
| <i>N/A</i> | |
| Synthesis and Characterization of Pullulan Acetate Coated Magnetic Nanoparticle for Hyperthermic Therapy | 2 |
| <i>D. Saranya, R. Reshma, V. Suganthan, A. Murugeswari, N. Arunai</i> | |
| Characterization of Chemical Reaction on Heat Transfer Through the Nano Fluid..... | 10 |
| <i>G. Srikanth, G. Srinivas, B. Babu</i> | |
| Structural and Magnetic Properties of Ultrafine CoFe₂O₄ Nanoparticles | 19 |
| <i>K. Rao, G. Choudary, K. Rao, C. Sujatha</i> | |
| Structure and Properties of Sol Gel Fabricated Na_{0.5}Nd_{0.5}Bi₄Ti₄O₁₅ Ceramics..... | 28 |
| <i>Rizwana, P. Sarah</i> | |
| Synthesis and Characterization of A New Cadmium Complex, Cadmium [(1,10-phenanthroline)(8-hydroxyquinoline)]Cd(Phen)q | 37 |
| <i>R. Kumar, P. Bhargava, A. Dvivedi</i> | |
| A Model for Magnetic Nanoparticles Transport in a Channel for Targeted Drug Delivery | 44 |
| <i>S. Sharma, R. Kumar, A. Gaur</i> | |
| Investigation of Trapezoidal-Cut Twisted Tape Insert in a Double Pipe U-Tube Heat Exchanger using Al₂O₃/Water Nanofluid | 50 |
| <i>P. Prasad, A. Gupta, K. Deepak</i> | |
| Capture Efficiency of Magnetic Nanoparticles in a Tube under Magnetic Field | 64 |
| <i>S. Sharma, A. Gaur, U. Singh, V. Katiyar</i> | |
| Parametric Optimization in Machining of Nimonic-263 Alloy using RSM and Particle Swarm Optimization | 70 |
| <i>M. Sreenivasa, N. Venkaiah</i> | |
| Transient MHD free Convection Flow and Heat Transfer of Nanofluid Past an Impulsively Started Vertical Porous Plate in the Presence of Viscous Dissipation | 80 |
| <i>V. Rajesh, M. Mallesh, O. Beg</i> | |
| Influence of Precursors on Morphology and Spectroscopic Properties of ZnO Nanoparticles..... | 90 |
| <i>U. Rao, G. Srinivas, T. Rao</i> | |
| Effect of Sintering Temperature on Zn_{0.94}Cr_{0.03}Fe_{0.03}O Nanostructures..... | 97 |
| <i>P. Chand, A. Gaur, A. Kumar</i> | |
| Synthesis of N-S Doped Graphene for Hydrogen Storage..... | 103 |
| <i>S. Pal, A. Agrawal, S. Nippanni, G. Anand</i> | |
| The Future of Civil Engineering with the Influence and Impact of Nanotechnology on Properties of Materials..... | 111 |
| <i>N. Rao, M. Rajasekhar, K. Vijayalakshmi, M. Vamshykrishna</i> | |
| Synthesis and Analysis of Ternary Oxide Nanomaterial for Electro-thermal Applications..... | 116 |
| <i>D. Sreedhar, Y. Vinod, V. Vasudeva</i> | |
| Estimation of Modal Damping Ratio from Specific Shear Modulus for Monolithic Materials and Hybrid Cored Multilayer Composites..... | 124 |
| <i>S. Havaldar, U. Chate</i> | |
| Efficient Nanocomposite formation of Acrylo Nitrile Rubber by incorporation of Graphite and Graphene layers: Reduction in Friction and Wear Rate..... | 139 |
| <i>N. Agrawal, A. Parihar, J. Singh, T. Goswami, D. Tripathi</i> | |
| Fabrication and Mechanical Properties of AlSi12 Nano Particulate Composite..... | 149 |
| <i>K. Srinivasulu, D. Sreedhar, P. Nagesh, G. Janardhana</i> | |
| Synthesis and Characterization of Nano-sized Al₂O₃ Particle Reinforced ZA-27 Metal Matrix Composites | 159 |
| <i>N. Shivakumar, V. Vasu, N. Narasiah, K. Subodh</i> | |
| Microstructural and Electrical Properties of Barium Strontium Titanate and Nickel Zinc Ferrite Composites | 168 |
| <i>R. Pandya, U. Joshi, O. Caltun</i> | |
| Polypyrrole/Carbon Nanotubes/Lactate Oxidase Nanobiocomposite Film based Modified Stainless Steel Electrode Lactate biosensor | 176 |
| <i>M. Bhavna, M. Ritu, V. Priyanka, K. Subhash</i> | |

| | |
|---|-----|
| Electrospun Nanofibers of Conducting Polyaniline/Al-SnO₂ Composites for Hydrogen Sensing Applications..... | 186 |
| <i>H. Sharma, D. Jamkar, S. Kondawar</i> | |
| Development of Electrospun Polyaniline/ZnO Composite Nanofibers for LPG Sensing..... | 195 |
| <i>P. Patil, R. Anwane, S. Kondawar</i> | |
| Synthesis, Characterization and Electrical Properties of a Composite of Topological Insulating Material: Bi₂Te₃-PANI | 205 |
| <i>R. Urkude, P. Patil, S. Kondawar, U. Palikundwar</i> | |
| Hardness and Wear Resistance of ZrO₂ Nano Particle Reinforced Al Nanocomposites Produced by Powder Metallurgy | 212 |
| <i>M. Ramachandra, A. Abhishek, P. Siddeshwar, V. Bharathi</i> | |
| Optimizing The Machining Parameters For Minimum Surface Roughness In Turning Al/6% SiC/6%RHA Hybrid Composites..... | 220 |
| <i>C. Shoba, N. Ramanaiah, D. Rao</i> | |
| Effect of Blast Furnace Slag on Mechanical Properties of Glass Fiber Polymer Composites | 230 |
| <i>A. Pradeep</i> | |
| Experimental Investigation of Jute FiberReinforcedNano Clay Composite..... | 238 |
| <i>K. Deepak, S. Vattikuti, B. Venkatesh</i> | |
| Influence of Thermal and Magnetic Field on Vibration of Double Walled Carbon Nanotubes Using Nonlocal Timoshenko Beam Theory | 243 |
| <i>P. Ponnusamy, A. Amuthalakshmi</i> | |
| Enhancing the Performance of MEMS Piezoresistive Pressure Sensor Using Germanium Nanowire | 254 |
| <i>S. Shaby, M. Premi, B. Martin</i> | |
| Component Replication Using 3D Printing Technology..... | 263 |
| <i>B. Satyanarayana, K. Prakash</i> | |
| Parametric Study of Sol Gel Technique for Fabricating ZnO Thin Films..... | 270 |
| <i>A. Chavan, B. Shivaraj, H. Murthy, A. Vivek, V. Holla, S. Shandilya, M. Krishna, B. Satyanarayana</i> | |
| Effect of Precursor Concentration on Structural and Morphological Properties of Iron Pyrite Thin Films | 279 |
| <i>A. Vedavathi, Y. Reddy, K. Reddy</i> | |
| Investigations on Physical Properties of Nanostructured Cr Doped CdO Thin Films for Optoelectronic Applications..... | 285 |
| <i>B. Hymavathi, B. Kumar, T. Rao</i> | |
| Effect of Annealing Temperature on Structural and Optical Properties of Dip and Spin coated ZnO Thin Films | 292 |
| <i>B. Shivaraj, H. Murthy, M. Krishna, B. Satyanarayana</i> | |
| Design and Analysis of Thin Film Silicon Solar Cells Using FDTD Method | 301 |
| <i>S. Saravanan, R. Dubey, S. Kalainathan</i> | |
| Detection of T-Wave Alternans in ECGs by Wavelet Analysis..... | 307 |
| <i>V. Nannaparaju, S. Narasimman</i> | |
| Design and Implementation of a Low-Power, High-Speed Comparator..... | 314 |
| <i>V. Deepika, S. Singh</i> | |
| Design of Low Power Adaptive Pulse TriggeredFlip-Flop Using Modified Clock Gating Schemeat 90nm Technology | 323 |
| <i>K. Kavali, S. Rajendar, R. Naresh</i> | |
| Material and Stress Analysis of Railroad Vehicle Suspension: A Failure Investigation..... | 331 |
| <i>M. Kumbhalkar, D. Bhone, A. Vanalkar</i> | |
| Performance Analysis of Alternate Repeaters for On-Chip Interconnections in Nanometer Technologies | 344 |
| <i>S. Rajendar, P. Chandrasekhar, M. Rani, R. Naresh</i> | |
| Realization of Data Flow in QCA Tile Structure Circuit by Potential Energy Calculation | 353 |
| <i>T. Purkayastha, T. Chattopadhyay, D. De, A. Mahata</i> | |
| Performance of Fading Channels on Energy Detection Based Spectrum Sensing | 361 |
| <i>M. Ranjeeth, S. Anuradha</i> | |
| Area Efficient Hybrid Parallel Prefix Adders | 371 |
| <i>N. Poornima, V. Bhaaskaran</i> | |
| Power Analysis of Quantum Cellular Automata Circuits | 381 |
| <i>E. Ganesh</i> | |
| Fixed-Width Multiplier with Simple Compensation Bias | 395 |
| <i>S. Bhusare, V. Bhaaskaran</i> | |
| A Novel Architecture for Scan Cell in Low Power Test Circuitry..... | 403 |
| <i>G. Kumar, K. Babulu</i> | |

| | |
|---|-----|
| Analysis and Detection of Cholesterol by Wavelets based and ANN Classification | 409 |
| <i>K. Adi, P. Rao, V. Adi</i> | |
| Probe-based Data Storage Technology: Thermomechanical Storage –State of the Art | 419 |
| <i>S. Vattikuti, P. Reddy, B. Venkatesh</i> | |
| Detection of Cancer in Lung with K-NN Classification Using Genetic Algorithm | 433 |
| <i>P. Bhuvaneswari, A. Therese</i> | |
| Stacked Dual Oxide Nano MOS Parameter Optimization For 3-D IC Realization | 441 |
| <i>C. Sathyanarayana, S. Rao, E. Charyulu</i> | |
| A Novel Approach for Design and Analysis of Diabetic Retinopathy Glaucoma Detection Using Cup to Disk Ration and ANN | 446 |
| <i>P. Rao, R. Gayathri, R. Sunitha</i> | |
| Studies on Acoustic Activity of Red Palm Weevil the Deadly Pest on Coconut Crops | 455 |
| <i>B. Martin, S. Shaby, M. Premi</i> | |
| Inclusion Complexation of Acetanilide into the β-Cyclodextrin Nanocavity: A Computational Approach | 467 |
| <i>D. Prema, K. Sivakumar</i> | |
| Experimental Studies on Void Fraction Measurement on Air-Lift Loop with Multiple Risers | 476 |
| <i>G. Pujari, N. Rao, A. Gupta, B. Mallikarjuna</i> | |
| Security Enhancement of Text Message Based on Matrix Approach Using Elliptical Curve Cryptosystem | 489 |
| <i>V. Kamalakannan, S. Tamilselvan</i> | |
| A Variational Principle Approach for Vibration of Non-Uniform Nanocantilever Using Nonlocal Elasticity Theory | 497 |
| <i>A. Pandey, J. Singh</i> | |
| Finite Element Analysis of All Composite CNG Cylinders | 507 |
| <i>M. Nirbhay, S. Juneja, A. Dixit, R. Misra, S. Sharma</i> | |
| Energy Generation from Municipal Solid Waste by Innovative Technologies – Plasma Gasification | 513 |
| <i>M. Rajasekhar, N. Rao, G. Rao, G. Priyadarshini, N. Kumar</i> | |
| Design and Development of a Bio-Inspired Flapping Wing Type Micro Air Vehicle | 519 |
| <i>S. Mishra, B. Tripathi, S. Garg, A. Kumar, P. Kumar</i> | |
| Wear Characteristics of Hardfacing Alloys: State-of-the-art | 527 |
| <i>B. Venkatesh, K. Sriker, V. Prabhakar</i> | |
| The Structure and Complex Impedance Spectroscopy of $\text{Sr}_{1-x}\text{Ca}_x\text{Bi}_4\text{Ti}_4\text{O}_{15}$ ($x=0, 0.2, 0.4, 0.6, 0.8$) Ceramics | 533 |
| <i>G. Anand, P. Kuchhal, P. Sarah</i> | |
| Electrical Properties of Lead Free $\text{Sr}_{0.8}\text{Na}_{0.1}\text{Sm}_{0.1}\text{Bi}_4\text{Ti}_4\text{O}_{15}$ Ceramics | 542 |
| <i>K. Ashok, B. Mamatha, P. Sarah</i> | |
| Biodegradable Nano-Hydrogels in Agricultural Farming - Alternative Source For Water Resources | 548 |
| <i>R. Vundavalli, S. Vundavalli, N. Mamatha, D. Srinivasa</i> | |
| An Investigation On ILSS Properties of Unidirectional Glass Fibre / Alumina Nanoparticles Filled Epoxy Nanocomposite At Different Angles Of Fibre Orientations | 555 |
| <i>M. Rajanish, N. Nanjundaradhy, R. Sharma</i> | |
| Effect of Viscous Dissipation, Soret and Dufour Effect on Free Convection Heat and Mass Transfer from Vertical Surface in a Porous Medium | 563 |
| <i>D. Reddy, G. Sreedhar, K. Govardhan</i> | |
| Fabrication of Electrospun Nanofibers of Titanium Dioxide Intercalated Polyaniline Nanocomposites for CO_2 Gas Sensor | 572 |
| <i>S. Nimkar, S. Agrawal, S. Kondawar</i> | |
| Luminescence Properties of Electrospun Nanofibers of Europium Complex $\text{Eu}(\text{TTA})_3\text{Phen}/\text{Polymers}$ | 580 |
| <i>M. Dandekar, S. Kondawar, S. Itankar, D. Nandanwar</i> | |
| Synthesis and Characterization of Conducting Polyaniline/Graphene Nanocomposites for Electromagnetic Interference Shielding | 588 |
| <i>P. Modak, S. Kondawar, D. Nandanwar</i> | |
| Electrospun Poly (Vinylidene Fluoride)/Poly (Methyl Methacrylate) Composite Nanofibers Polymer Electrolyte for Batteries | 595 |
| <i>Y. Mahant, S. Kondawar, M. Bhute, D. Nandanwar</i> | |
| Scope of Nanotechnology in Radiation Treatment Planning | 603 |
| <i>S. Kishore, N. Narasimham, A. Prasad</i> | |
| Structure and Crystallization Behaviour of Amorphous $\text{Fe}_{76}\text{Tm}_4\text{B}_{20}$ Alloy Studied by DSC, SEM and EDS | 609 |
| <i>M. Srilalitha, B. Prasad</i> | |

| | |
|--|-----|
| Analysis and Design of Principal Component Analysis and Hidden Markov Model for Face Recognition..... | 616 |
| <i>D. Kumar, P. Rao</i> | |
| Thermosetting Polymer and Nano Clay Based Natural Fiber Bio- Composites..... | 626 |
| <i>K. Deepak, N. Reddy, T. Naidu</i> | |
| Measuring the Surface Properties of a Novel 3-D Artificial Magnetic Material | 632 |
| <i>R. Reddy, K. Kumar, H. Khan, H. Vaish</i> | |
| Frequency Response of Sandwich Beam Embedded with Shape Memory Alloy Wires | 638 |
| <i>D. More, S. Chavan</i> | |
| Wear Analysis on Silicon Carbide Coated HSS Pin on SS Disc Substrate..... | 644 |
| <i>R. Venkatesh, V. Rao, N. Arunkumar, S. Biswas, R. Shoban</i> | |
| Electrical and Dielectrical Properties of $_{0.19}\text{Ba}(\text{NO}_3)_2 - _{0.81}\text{KNO}_3\text{:CeO}_2$ Solid Electrolyte System..... | 651 |
| <i>S. Devi, S. Reddy, A. Chary</i> | |
| Novel Frequency Reconfigurable Slotted Patch Antenna: Design and Analysis | 660 |
| <i>K. Reddy, K. Kumar, P. Reddy, H. Vaish</i> | |
| Ru/Ti Schottky Contacts on N-type In-P (100): Temperature Dependence of Current-Voltage (I-V) Characteristics | 666 |
| <i>R. Reddy, M. Reddy, R. Padmasuvarna, L. Narasappa</i> | |
| Study of Normal Static Stresses Under an Excitation in Poroelastic Flat Slabs..... | 673 |
| <i>S. Alety, M. Perati</i> | |
| Fabrication of a Novel Nano-engineered Glass Based Optical Fiber for Radiation Sensor Application..... | 683 |
| <i>S. Ghosh, A. Dhar, S. Das, M. Paul</i> | |
| Nano-fractal Electrodes Use in Electroencephalography (EEG) Array Generation to Map with Speech Signals..... | 693 |
| <i>J. Koya, S. Rao</i> | |
| Polyaniline/MnO₂ Nanocomposites Based Stainless Steel Electrode Modified Enzymatic Urease Biosensor | 699 |
| <i>A. Mahajan, S. Kondawar, R. Mahore, B. Meshram, P. Virutkar</i> | |
| Simulation of Pulsatile Blood Flow Through Various Cardiac Defects and Quantitative Measurements of Shunted Blood Volume..... | 706 |
| <i>V. Sonetha, J. Bellare</i> | |
| Heat Treatment Impact on the Properties of Na and N Dual Doped ZnO Thin Flms by Spray Pyrolysis | 714 |
| <i>R. Swapna, K. Venkateswarlu, M. Kumar</i> | |
| Effect of Post-Annealing on the Properties of Eu Doped ZnO Nano Thin Films | 723 |
| <i>R. Swapna, T. Reddy, K. Venkateswarlu, M. Kumar</i> | |
| The Role of CatSper1 and CatSper2 Ion Channels in Male Fertility and Infertility | 730 |
| <i>S. Saha, K. Talukdar, A. Chakraborty</i> | |
| Spectroscopic Studies of Distorted Structure Bio-nano Molecules..... | 737 |
| <i>K. Rao, V. Rao, J. Vijayasekhar</i> | |
| Sensitivity, Pole-Zero and Distortion Analysis of State Variable Filter with Multiple Faults..... | 748 |
| <i>B. SreeLatha, S. Rao, E. Charyulu</i> | |
| Heat Transfer Process Control in Integrated Circuits at Nano Meter Sizes..... | 754 |
| <i>K. Sundari, S. Rao</i> | |
| Characterisation of PAN Carbon Fabric/ Epoxy Resin for Structural Materials | 760 |
| <i>A. Veerapaneni, M. Dandu</i> | |
| Design and Analysis of Fluid Structure Interaction in a Horizontal Micro Channel..... | 768 |
| <i>K. Rao, K. Sravani, G. Yugandhar, G. Rao, V. Mani</i> | |
| Power-Aware Alternative Adder Cell Structure Using Swing Restored Complementary Pass Transistor Logic at 45nm Technology | 789 |
| <i>T. Bhagyalaxmi, S. Rajendar, S. Srinivas</i> | |
| Author Index | |