

## **Table of Contents**

### Preface, Committee

## **Chapter 1: Design and Analysis of Composite Materials**

<b>Crystallization Kinetics of PP/Talc/Coir Hybrid Composites</b>	
D. Purnima and S. Somarowthu	3
<b>Fabrication and Mechanical Properties of Extruded Al-SiC Nanocomposites</b>	
P.R. Matli, U. Fareeha, R.A. Shakoor, M. Yusuf, A.M.A. Mohamed and M. Gupta	9
<b>Development of Aluminium Reinforced Milled Carbon Fibre Composites via Magnetically Controlled Ball Milling: Manufacturing and Characterisation</b>	
B. Al-Mosawi, D. Wexler and A. Calka	13
<b>Investigation of Electrical Conductivity of Polyacrylonitrile (PAN) Nanofibers/Nano Particul (Ag,Cu, CNT and GNR)</b>	
G. Önal, M.O. Erdal and K. Dincer	20
<b>Fabrication and Microstructure Study of Aluminum Matrix Composites Reinforced with SiC and B<sub>4</sub>C Particulates</b>	
G. Singh Saini and S. Goyal	26

## **Chapter 2: Properties, Synthesis and Processing of Alloys**

<b>Microstructural Characterization and Properties of Sn-Ag-Cu (SAC) Compound Induced by Zn Alloying</b>	
S.M. Go Roa, E. Magdaluyo Jr. and W. Gierlotka	33
<b>High-Temperature Corrosion of Aluminized Diffusion-Coating for Fe-Base Alloy in N<sub>2</sub>/H<sub>2</sub>O/H<sub>2</sub>S-Mixed Gas</b>	
M.J. Kim and D.B. Lee	37
<b>Wear Behaviour of NiTi SMA Fabricated by P/M: A Taguchi Approach</b>	
N. Sharma, R. Khanna, V. Kumar and G. Singh Saini	41

## **Chapter 3: Semiconductors and Materials for Opto- and Microelectronics**

<b>Ab Initio Study of MgTe Self-Interstitial (Mg<sub>i</sub> and Te<sub>i</sub>): A Wide Band Gap Semiconductor</b>	
E. Igumbor, E. Omotoso and W.E. Meyer	47
<b>First Principles Calculations of Graphene Doped with Al, P and Si Heteroatoms</b>	
M.T. Romero, Y. Avila Alvarado, R. Garcia-Diaz, C.R. Garcia, R. Ochoa Valiente and G.H. Cocoletzi	52
<b>Effect of Solvents on Controlling the Photophysical Properties of Poly[2-Methoxy-5-(2'-Ethylhexyloxy)-1,4-Phenylenevinylene] (MEH-PPV) Nanoparticle</b>	
R. Potai and R. Traiphob	56

## **Chapter 4: Functional Ceramics**

<b>Photocatalytic Activity of SrAl<sub>2</sub>O<sub>4</sub>:xCu Powders under Solar Irradiation</b>	
A. Berlanga, R. Garcia-Diaz, C.R. Garcia, J. Oliva, M.T. Romero and L.A. Diaz-Torres	63
<b>Modeling of the Effects of Cyclic Voltammetry (CV) Using Fuzzy Logic with Different Membership Functions for Proton Exchange Membrane Fuel Cell (PEM) with Polyvinyl Alcohol/Nano Silver (PVA/Ag)</b>	
A.S. Ersoyoglu, S. Ata, K. Dincer, G. Önal and Y. Yilmaz	67
<b>Combustion Synthesis of MAX Phase Solid Solution Ti<sub>3</sub>(Al,Sn)C<sub>2</sub></b>	
C.L. Yeh and C.H. Chiang	73