Table of Contents

Preface

Chapter 1: Functional Materials and Materials for Specific Applications

First-Principles Investigations of Mechanical, Electronic and Optical Properties of Heavy Thallium Perovskites $TlSnX_3$ (X = F, Cl, Br and I)	
A. Marjaoui, M.A. Tamerd, H. Rghioui, M. Diani and M. Zanouni	3
Thermoelectric Properties of Antiperovskite X ₃ SiO (X = Sr and Ba) M.S.A. Rahim, A. Chik and Y.C. Keat	15
Structural and Optical Properties of CdZnS/PVP and Cr _x : Cd _{0.5-x} Zn _{0.5} S/PVP Nanoparticles S. Munga, G.S. Harish, C. Salma, M. Ankinapalli and P. Sreedhara Reddy	25
Development, Purification and Structural Evaluation of β-CDs from Cassava Waste Using CGTase and Nanostructured Encapsulated Plant Mediated AuNPs via Sustainable and Environmentally Friendly Techniques O.J. Olaniyan, E.O. Dare, A.K. Akinlabi, D.D. Diaz, F.O. Oladoyinbo, G.A. Adebayo, T.O.	
Alonge, O.O. Emmanuel and A.M. Mosaku	35
Assessments on the Antibacterial Activity of DL-Valinium Maleate Compound and Z-Scan	
Analysis S. Azhagiri, P. Vasudevan, D. Jayaraman and A. Vichithra	47
Si/C Graphite Anode Materials for Lithium-Ion Batteries with Stabilized Capacity and High-Compacted Density Prepared by Liquid-Phase Method T. Ma, W.B. Zhang, Y.B. Xiao, H.X. Yue, J. Liu and D. Nan	59
Microstructural Analysis of Biodegradable Magnesium Alloy WE43 after Laser Surface	
Melting C.Y. Tan, C. Wen, K. Munir, D. Zhang and H.Q. Ang	67
A Comprehensive Investigation into the Influence of Prolonged Mixing on the Properties of Concrete Incorporating Different Types of Portland Cement D.A. Singaravel, N. Boopathi, S. Rajendran and R. Dhairiyasamy	73
Chapter 2: Water Treatment	
Assessing the Removal Efficiency of Microplastics from Water Using Electrocoagulation H. Amjad, N. Maqbool, S. Sarwar, A. Sohail and M. Noor	87
Chapter 3: Materials and Technologies in Mechatronics	
Recording Performance of Bit Patterned Media in Account of Magneto-Interaction Field and Bit Error Rate	
C.M. Cheong, H.W. Su, T.F. Lai, M.H. Abdul Halim and M.L.P. Tan	97
Integrated Weighing System Using Load Cell and Ultrasonic Sensor: A Case Study at Negeri Roadstone Malaysia Quarry	4.05
N.A.B. Nik Rusli and A.B. Alias	103