

# Table of Contents

## Preface

## Chapter 1: Functional Ceramics and Oxides

<b>First Principle Calculation of Lattice, Electronic Structures and Hole Concentration of Ca-Doped YBCO</b> C.M. Cheong and S.K. Chen	3
<b>Analysis on Structural and Electrical Properties of High and Low Density Eu-Doped Bi(Pb)-2223 Superconductor</b> N.E. Suhaimi, A. Hashim, W.A. Wan Razali, S.F. Saipuddin and N. Ibrahim	11
<b>PSO-SVR Algorithm for Accurate ZnO Energy Band Gap Prediction</b> M.A. Abd Rahman, N.A. Mohd Shazali and C.E.A. Bundak	19
<b>Accelerated Synthesis of GIS Zeolite via Ultrasonic-Aided Hydrothermal Growth</b> N. Jusoh and M.I. Mohd Hasbullah	29

## Chapter 2: Composites

<b>Wear Mechanisms of a Kevlar-Zirconia-Epoxy Composite Casing Lining</b> Y. Fouad, N. Merah and A. Shaarawi	41
<b>The Mechanical Properties of Vanillin-Incorporated Surgical Obturator Resin</b> S. Thaweboon, P. Chirachoenporn, P. Iamteerapaiboon, P. Quanprasert, A. Tripaththaranan and P. Churnjittapirom	49
<b>Optimizing Fiber Orientation GFRP Composite Wraps for Enhanced Burst Pressure Performance of Corroded API 5L X42 Pipelines</b> M.D. Abdul Shahid, M.H. Mohd Hashim, M.K. Kamarudin, S.A. Kudus, N.M. Fadzil, A. Jamadin and M.F. Muda	55
<b>Effective Refractive Index Estimation of Composite Structures Using the Mie Theory and Layer Transmissivity Approach</b> J.P. Bijarniya, M.M. Rehman and A. Seppälä	61

## Chapter 3: Building Materials

<b>Development of Light Weight Green Efficient Interlocking Blocks Using Waste Plastics and Industrial Wastes for Low Cost Housing Construction</b> K.T. Udhaya and M. Jayadurgalakshmi	71
<b>Experimental Study on the Partial Replacement of Fine Aggregate with Cashew Nutshell Ash in Concrete</b> K. Pandi, V. Vivekanandhan, K. Kalpana and S.J.P. Gnanaraj	77
<b>GMB: A Comprehensive Review of Material Composition, Structural Properties, and Ecological Impacts</b> A. Kandasamy and B. Ramesh	87
<b>Comprehensive Review on Foamed Concrete and its Utilization in Contemporary Construction Technology</b> P. Krishna Kumar, M. Al Khazaleh and E.S. Karthic	99