Table of Contents

Preface

Chapter 1: Materials Science

Critical Review on 3D Scaffolds Materials A.K. Yadav, A. Awasthi, K.K. Saxena and M.K. Agrawal	3
Analyzing the Fatigue Behaviour of E-Glass Fiber Reinforced Interpenetrating Polymer Networks (EP/VP/EV) Leaf Spring K. Santhosh Priya, K.R. Vijaya Kumar, G. Suresh, R. Ganesamoorthy, R. Ravi and C.M. Meenakshi	18
A Newly Developed Dispersive Interaction Approach, DFT-D3, to the Three-Dimensional Topological Host Material Sb ₂ Te ₃ N. Shukla, P. Chetri and G.A. Ahmed	29
Mechanical Characterization and Numerical Optimization of Aluminum Matrix Hybrid	2)
Composite A.A. Adediran, F.O. Edoziuno, O.S. Adesina, K.O. Sodeinde, A.B. Ogunkola, G.A. Oyinloye, C.C. Nwaeju and E.T. Akinlabi	37
Experimental Study on Reinforced Aluminium Metal Matrix Composites with B ₄ C through Different Techniques S. Nallusamy, R.T. Chander and G.V. Punna Rao	48
Properties and White Light Photoresponses of CdSe Colloidal Nanoparticles K.A. Mohammed, M.M. M. Hadi, E.H. Hussein, A.S. Al-Kabbi and K.M. Ziadan	58
Evaluation of Mechanical and Micro Structural Properties of Natural Fiber Reinforced Polymer Composites R.D. Santha and M.O. Gopala Krishna	66
Energy Absorption Characteristics and Elastoplastic Damage Response of Hybrid Epoxy/Coir Fibre-Reinforced Aluminum 6063 Tubes in Axial Deformation B. Malomo, O. Ajayi, O. Ogunbodede, O. Olabinjo, O. Fadodun, B. Z. Adewole, I. Nasirudeen and D. Obembe	75
Chapter 2: Technologies of Materials Processing	
Impact of CNC Milling Parameters on Temperature, Surface Roughness, and Chip Formation of General Purpose PMMA	87
Impact of CNC Milling Parameters on Temperature, Surface Roughness, and Chip Formation of General Purpose PMMA J.M. Wambua, F.M. Mwema, T.C. Jen and E.T. Akinlabi Analysis of the Multi-Directional Forging of Aluminium Alloy 7075 Process Parameters: Numerical and Experimental Analysis	
Impact of CNC Milling Parameters on Temperature, Surface Roughness, and Chip Formation of General Purpose PMMA J.M. Wambua, F.M. Mwema, T.C. Jen and E.T. Akinlabi Analysis of the Multi-Directional Forging of Aluminium Alloy 7075 Process Parameters:	87 98 110
Impact of CNC Milling Parameters on Temperature, Surface Roughness, and Chip Formation of General Purpose PMMA J.M. Wambua, F.M. Mwema, T.C. Jen and E.T. Akinlabi Analysis of the Multi-Directional Forging of Aluminium Alloy 7075 Process Parameters: Numerical and Experimental Analysis C. Obara, F.M. Mwema and T.C. Jen Micro Forming and its Applications: An Overview S.K. Sharma, B.K. Kodli and K.K. Saxena The Influence of Material Position towards the Bending Strength of the 4 Pass AA1050/AA6082 and AA6082/AA1050 FSPed Joints	98 110
Impact of CNC Milling Parameters on Temperature, Surface Roughness, and Chip Formation of General Purpose PMMA J.M. Wambua, F.M. Mwema, T.C. Jen and E.T. Akinlabi Analysis of the Multi-Directional Forging of Aluminium Alloy 7075 Process Parameters: Numerical and Experimental Analysis C. Obara, F.M. Mwema and T.C. Jen Micro Forming and its Applications: An Overview S.K. Sharma, B.K. Kodli and K.K. Saxena The Influence of Material Position towards the Bending Strength of the 4 Pass AA1050/AA6082 and AA6082/AA1050 FSPed Joints O. Muribwathoho, V. Msomi and S. Mabuwa Wear and 3D Micro-Morphological Studies on CAD/CAM Milled Dental Zirconia for Post-Fabrication Dental Processes	98 110 129
Impact of CNC Milling Parameters on Temperature, Surface Roughness, and Chip Formation of General Purpose PMMA J.M. Wambua, F.M. Mwema, T.C. Jen and E.T. Akinlabi Analysis of the Multi-Directional Forging of Aluminium Alloy 7075 Process Parameters: Numerical and Experimental Analysis C. Obara, F.M. Mwema and T.C. Jen Micro Forming and its Applications: An Overview S.K. Sharma, B.K. Kodli and K.K. Saxena The Influence of Material Position towards the Bending Strength of the 4 Pass AA1050/AA6082 and AA6082/AA1050 FSPed Joints O. Muribwathoho, V. Msomi and S. Mabuwa Wear and 3D Micro-Morphological Studies on CAD/CAM Milled Dental Zirconia for Post-Fabrication Dental Processes A. Patil, J.D. Davidson, J.M. Jafferson, V. Gopal and G. Manivasagam Role of Additive Manufacturing in Development of Forming Tools and Dies for Sheet Metal Forming: A Review	98 110 129 141
Impact of CNC Milling Parameters on Temperature, Surface Roughness, and Chip Formation of General Purpose PMMA J.M. Wambua, F.M. Mwema, T.C. Jen and E.T. Akinlabi Analysis of the Multi-Directional Forging of Aluminium Alloy 7075 Process Parameters: Numerical and Experimental Analysis C. Obara, F.M. Mwema and T.C. Jen Micro Forming and its Applications: An Overview S.K. Sharma, B.K. Kodli and K.K. Saxena The Influence of Material Position towards the Bending Strength of the 4 Pass AA1050/AA6082 and AA6082/AA1050 FSPed Joints O. Muribwathoho, V. Msomi and S. Mabuwa Wear and 3D Micro-Morphological Studies on CAD/CAM Milled Dental Zirconia for Post-Fabrication Dental Processes A. Patil, J.D. Davidson, J.M. Jafferson, V. Gopal and G. Manivasagam Role of Additive Manufacturing in Development of Forming Tools and Dies for Sheet Metal	98 110 129

Chapter 3: Water Treatment

The Mechanism of Adsorbents Adsorption Affinity in Relation to Geometric Parameters S. Ntsondwa, V. Msomi and M. Basitere	189
Synthesis and Characterization of PVDF/Graphene Nanocomposite Membrane for Water Treatment Applications	
S. Rao, A. Lakshmikanthan, A.S. Sowmyashree, C. Hegde, A.M. Isloor and V. Malik	198
Chapter 4: Engineering Support of Technological Processes	
MHD Slip Flow and Heat Transfer with Ohmic Heating between a Rotating Solid Disk and Stationary Permeable Disk	211
S.R. Gunakala, V. Job and M. Alexander Analysis of Entropy Generation in Micropolar Magneto-Nanoliquid Material with Activation Energy and Nonlinear Radiation B.A. Verson, S.O. Salawa, O.V. Oronyas and A.B. Dien	223
R.A. Kareem, S.O. Salawu, O.K. Onanuga and A.B. Disu Experimental Analysis on Flow Field Pattern of PEM Fuel Cells D. Prasad, G.N. Srinivasulu, A. Bharti, N. Kumar and S. Mohd Azam	234
Numerical Modelling and Simulation to Investigate the Effect of Flow Field Pattern on the Performance of PEM Fuel Cells D. Proced, G.N. Sziniyeszulu, A. Phorti, N. Kumor, V. Volisele and A. K. Chauban	247
D. Prasad, G.N. Srinivasulu, A. Bharti, N. Kumar, V. Velisala and A.K. Chauhan An Approach to Measure Tool Wear through Image Processing in Incremental Sheet Metal Forming	247
M. Oraon	259