

Table of Contents

Preface

Chapter 1: Metals Properties, Coatings and Tribology

Study of Thermal Stability of Superhydrophobic Properties of Coatings Formed on Magnesium Alloy K.V. Nadaraia, D.V. Mashtalyar, S.N. Suchkov, V.V. Mostovaya, I.M. Imshinetskiy, S.L. Sinebrukhov and S.V. Gnedenkov	3
Investigation on the Performance of Al7075 Alloy Surface Repaired by Cold Spray Coating Technology K. Kiliçay and S.C. Dayi	9
Influence of Oxidation Temperature on Structure and Mechanical Properties of Titanium T. Chen and S. Koyama	15
Effect of Solution Treatment on Cavitation Erosion Resistance of Duplex Stainless Steel Surfacing Layers Z.R. Wang, Y.F. Bao, Q.N. Song, K. Yang and Y.F. Jiang	21
Using Atomic Force Microscopy to Evaluate Microstructure for Direct Metal Laser Melted Titanium G. Wong and C. Sharp	26
Sliding Friction and Wear Behavior of GCr15 Bearing Steel at Different Temperatures D.Y. Wang, R.C. Xu, D.X. Xia, S.R. Wang, Y.C. Pei, Z.H. Liu and Z.P. Han	35

Chapter 2: Grinding and Finishing Processes

Studying the Influence of Dressing Parameters on the Surface Roughness when Conducting the External Grinding of SKD11 Steel T.N. Giang, K.K. Bui, Q.C. Dang, D.N. Nguyen, X.T. Hoang and V.N. Pi	45
Research on Surface Quality by Ultrasonic Vibration-Assisted Face Grinding of Cemented Carbide G.J. Chen, J.K. Xu, J.Q. Wang, J.D. Wang, L. Tong and H.D. Yu	52
Determining the Optimum Set of Dressing Parameters Satisfying Minimum Surface Roughness when Conducting the Internal Grinding of Hardened SKD11 Steel L.X. Hung, T.N. Giang, Q.H. Tran, N.H. Linh, D.N. Nguyen and V.N. Pi	58
Research on Surface Roughness Prediction Model of Ultrasonic Assisted Grinding by Response Surface Method H.D. Yu, M.X. Wang, J.K. Xu, L. Tong, G.J. Chen, B. Dai and S. Wang	66
Study on Finishing of Polychlorotrifluoroethylene Resin by Magnetic Abrasive Finishing Process with Renewable Abrasive Particles J.Y. Xu and Y.H. Zou	72

Chapter 3: Functional Materials

Elimination of Oxygen Defects in In-Si-O Film and Thin Film Transistor Performance E.K. Palupi and A. Fujiwara	81
Graphene Oxide as a Substrate for Biosensors: Synthesis and Characterization M. Adel, A.H.A. Abdel-Wahab, A. Abdel-Mawgood and A. Osman Egiza	87
Influence of Force Chains Behaviors on Strength of Al/W/PTFE Granular Composite L. Tang, D. Hu, S. Zhou, C. Ge, H.F. Wang and J. Liu	94

Chapter 4: Materials and Technologies in Electrochemistry and Environmental Protection

Optical Absorption and Photoconversion Characteristics of WO₃ Nanofiber Photoanodes Prepared by Electrospinning with Different Calcination Temperatures R. Bojarus, T. Yuangkaew, T. Thammabut, M. Horprathum, P. Jaroenapibal and N. Triroj	103
Studies on the Performance of Two Dimensional AlSi as the Anodes of Li Ion Battery S. Hao	109
Rapid Removal of Methylene Blue in Water Using Polymer-Based Biochar Nanocomposite-Coated Filters E.C.R. Lopez, N.M. Saporantos, W.V.R. Magbalon, R.C. Aquino, M.L.K.S.J. Celebre and J.V.D. Perez	116
Value-Added Utilization of Banana Peel (<i>Musa acuminata</i>): Adsorption Fatty Acid and Extending the Life of Activated Carbon W.D.P. Rengga, B. Triwibowo, J.T. Putra, A. Nugroho, S. Kadarwati and S. Subiyanto	125

Chapter 5: Polymers and Composites

Fabrication and Measurement of Flexible Polymer Aerogel and Factors Affecting its Thermal Conductivity J.Z. Wang, J. Du and Y.B. Wang	133
Effect of the Environment on the Characteristics of a Polymer S. Redjala, S. Azem and N.A. Hocine	139
Mechanical Characterization and Fracture Analysis of Epoxy Resin Composites Reinforced with Quasi-Unidirectional Salago Fibers J.D. Lopena and J.C. Millare	145
Grass Waste Derived Cellulose Nanocrystals as Nanofiller in Polyvinyl Alcohol Composite Film for Packaging Application W.H. Danial, R.M. Taib, M.A.A. Samah and Z.A. Majid	151
Earth Bricks with Halloysite Nanoclay: Research and Experimentation for the Sustainability of Materials C. Sposito and F. Scalisi	159
Mild Reaction of Highly-Oriented Collagen Fibril Arrays with Simulated Body Fluid Y.D. Chai, Z.Z. Liu, D. Noda and M. Tagaya	166
Developing a HEC/CMC-Reduced Graphene Oxide Hydrogel Nanocomposite for Seawater Desalination T. Tumolva, K.C. Madamba, I.G. Nunag and V.G. Villanueva	173

Chapter 6: Computational Modelling

Computational Revolutions in Lattice Thermal Conductivity L.I. Ranasinghe and C.H. Hsu	181
Creep Parameters Determination by Omega Model to Norton Bailey Law by Regression Analysis for Austenitic Steel SS-304 M. Sattar, A.R. Othman, S. Kamaruddin, M. Azad Alam and M. Azeem	188
Processing of C_f/SiC Composites through Two-Channel Temperature-Control CVI: I, Modeling P.F. Wang, S.F. Luo, H. Zhang, S. Zhang and L.L. Zheng	198