Table of Contents

Preface

Chapter	1:	Steel	and	Alloys
---------	----	-------	-----	--------

Assessment of Mechanical Strength of A36 Steel with Flux Cored Arc Welding Process R.A.S. Cabural, F.M.J. Garcia, P.G.I. Rivera, D.G.F. Valentino, R.G. Tayactac, E.B.O. Ang, R.D. Umali and G.M. Escalona	3
Influence of Reinforcing nano-Al ₂ O ₃ Particles on Microstructure and Hardness Properties of HVOF Sprayed 80Ni20Cr Coatings S. Pokwitidkul, S. Chaleawlert-umpon, P. Thongyoug, K. Kamonsuangkasem, S. Wannapaiboon	
and J. Tungtrongpairoj	10
Chapter 2: Polymers and Composites	
Optimize the Operational Efficiency and Performance of Resistive Photomemory by Adjusting the Molecular Chain Ratio in the Polyimide Film I.M. Tseng, P.E. Hsu, P.Y. Jiang, W.C. Ou, C.H. Chang and W.L. Yang	19
Electrically Conductive Rubber by Modified Acetylene Black via Admicellar Polymerization	
T. Pukird, B. Methachan and T. Pongprayoon	26
Enhancement of Dielectric Properties and Energy Storage Density in PVDF-Based and Graphene-Nanoplatelets S. Chaipo and C. Putson	32
Characteristics of Crosslinked Gelatin Film with Dialdehyde Cellulose Influenced by Plasticizer Type	
S. Kirdponpattara, R. Muangnamsuk and S. Chuetor	38
Performance of Thermally Stable Diamond Composite as Rock Cutting Tips under Varied Depth of Cut Y. Sun, X.S. Li and H. Guo	45
Prediction of Stress Relaxation Behavior of Polymer Foam Using Artificial Neural Network P. Aengchuan, P. Boonpuek and J. Klinsuk	51
Temperature-Dependence of Energy Storage and Electrocaloric Performances of Ternary PVDF-HFP/PU/PMMA Composites	5.7
P. Itsaradamkoeng and C. Putson	57
Chapter 3: Synthesis and Applications of Nanomaterials	
Structure-Mechanical Property Relationships in Carbon Nanotube Yarns R.A. Ramadhan, C. Yu, A. Kunitomo, N. Shigemitsu, T. Shindo and G. Yamamoto	65
Synthesis and Characterization of Cu ₂ O/CuO Quantum Dots as Photocatalyst for Lignin Depolymerization via Reactive Oxygen Species: A Preliminary Study P.R. Pratama, F.A. Hutomo and A.D. Pramata	72
Low-Cost Fabrication of Visible-Light Sensitive PAN/Cu₂O QDs Nanofibers F.A. Hutomo, P.R. Pratama, N.L. Hamidah and A.D. Pramata	78
Chemical Constituents and their Nanoemulsion Properties of Ethyl Acetate Crude Extract from Black Galingale Rhizome	
N. Boonkert, C. Sonklin, C. Laongtiparos, S. Pranee, S. Seeyangnok and N. Trongsiriwat	85
The Investigation of Phase Transformation Process of Nano-Citrogypsum via Recycling Saline Solution	
S. Seeyangnok, N. Boonsuwan, T. Sirimahasal, S. Pranee and N. Trongsiriwat	91

Chapter 4: Ceramics

Study of Phase Composition and Microstructure of Porous Alumina Ceramics Derived from Hydrothermal Powders	
R.I. Shakirzyanov, Y.A. Garanin, A.L. Kozlovskiy, D.I. Shlimas, M.V. Zdorovets and D.K. Zhamikhanova	99
Effect of Bi ₂ O ₃ , B ₂ O ₃ and V ₂ O ₅ Sintering Additives on Phase Composition, Microstructure	
and Electrical Resistivity of SrAlFe ₁₁ O ₁₉ Ceramics N. Volodina, S. Maznykh, D. Vinnik, A.V. Trukhanov and A.L. Kozlovskiy	105
Chapter 5: Chemical Engineering	
Textile Wastewater Treatment Using Activated Graphene-Like Biochar Derived from Onion Peel Biomass F.A. Kwarteng, M.A. Hassan, H. Ohashi and A.S.G. Khalil	113
Modification of the Chitosan Spray Coating on Pineapple Pulp as Adsorbent for Copper Ion Adsorption from Aqueous Solution P. Charnkeitkong, W. Jonglertjunya and X.S. Feng	122
Chemical Constituents of Black Galingale Rhizome from Hexane Crude Extract and its Nanoemulsion Preparation A. Wongcharu, C. Sonklin, C. Laongtiparos, S. Pranee, S. Seeyangnok and N. Trongsiriwat	128
Particle Characteristics of Diatomite Activated by Alkaline Solution T. Yann, C. Winotapun, P. Yos, L.H. Voon and O. Boondamnoen	134
Experimental Evaluation of Rheological Properties of Water-Based Drilling Fluid with Fly Ash Additive S.K. Dewangan, N. Nathwani and A. Kawade	141
Chapter 6: Additive Manufacturing	
Polyhydroxybutyrate/Polylactic Acid/Polybutylene Succinate Blend Filaments for 3D Printing Applications K. Passarapark, C. Aumnate, O. Boondamnoen and P. Potiyaraj	149
3D Printing of Urethane Dimethacrylate with Nanoclay for Enhanced Curing Properties via Stereolithography	
B.A. Basilia, A.J.C. Boniel, G.S.B. Borilla III and P.A.N. de Yro Optimization of Multi-Objective Response of FDM Fabricated PLA Parts with Morphological Investigation on the Effects of 3D Printing Parameters	155
C.E.L. Alviar and B.A. Basilia Comparison of the Mechanical, Thermal and Structural Properties of Gamma-Irradiated and Conventional SLA 3D Printed Methacrylate-Based Photo-Curable Resin for	161
Biomedical Application J.A.C. Sy, B.A. Basilia, C.T. Aranilla, C.S. Emolaga, V.U. Lagura and M.T. Margarito	167
Chapter 7: Building Materials and Structures	
Experimental and Numerical Study on the Blast Resistant Performance of Geopolymer Concrete	
J.W. Wu, H.J. Syu, Y.K. Tsai, Y.F. Li, W.H. Lee, C.Y. Kuo, C.C. Chen, W.C. Lin and Y.W. Wang	175
Effect of Cross-Section Stiffness on Strength of Rectangular Steel H.T. Wu, C.H. Liu and W.T. Hsu	183
Time-Variant Chloride Ingress Models for Probabilistic Assessment of Concrete Bridge Decks with De-Icing Salt Attack P. Aruz and P. Koonnamas	189
Analyzing the Combined Effects of Axial Loads and Bending Moments on Unequal-Angle Steel Members W.T. Hey and S.T. Chung	195
W.T. Hsu and S.T. Chung Analysis of the Effect of Slenderness Ratio on Axial Force in T-Section	193
W.H. Hsu, H.C. Chung and W.T. Hsu	201

Investigation of the Relationship between Concrete Cylinder Dimensions and Compressive Strength			
Y.F. Lin and C.H. Liu	208		
Chapter 8: Modelling in Mechanical Engineering			
Analysis of Vibration Model to Study the Effect of Defect Sizes and Load on Stiffness, Contact Deformation, and Contact Force Variation in Deep Groove Ball Bearing A.K. Verma and P.K. Saini	217		
CFD Simulation of a Circulating Fluidized Bed Boiler to Improve Air Distribution for Satisfactory Fluidization B. Gonzales, R.G. Tayactac, R.D. Umali, J. Honra and A.D. Calderon	225		
Extended Finite Element Simulation of Axial Semi Elliptical Surface Crack in Bi-Material Pipe			
S. Bhattacharya and V. Sonkar	231		
Optimization of Helical Gear Plunge Shaving Cutting Parameters for Cutter Life Using Taguchi Method A.A. Tolentino, M.C.E. Manuel and R.G. Tayactac	237		
Combined Influence of a Liner Deformation and Couple Stresses on the Partial Bearing Aspect Ratios			
V. Kumar, S.K. Lambha and R. Verma	243		