Table of Contents

Preface

Chapter 1: Structural Alloys

Tribological Properties of Spark Plasma Sintered Ti48Al48Cr2Nb2 Alloy M.R. Mphahlele, P.A. Olubambi and E. Olevsky	3
A Study on Alloy Characterizations for Long Term Service Based Effects on Materials A. Alduaij and H. Sundaram	11
Effect of Adding Minor Cu Amounts on Stability of Constituent Phases in Al _x CrFeMnNi High Entropy Alloy Microstructure	
M. Navazani, S.R. Kada, D. Fabijanic and M.R. Barnett	19
Chapter 2: Polymers and Composites	
Surface Finish Optimization of Vapor Smoothened PLA Fabricated Parts with Microstructural Analysis	
C.E. Alviar and B.A. Basilia Investigation of the Mechanical Properties of Urethane Dimethacrylate (UDMA) Reinforced	29
with Abaca Cellulose for Vat Photopolymerization (VP) C.A. Dela Cruz, J.A.M. Medenilla and B.A. Basilia	35
Chapter 3: Materials Corrosion and Corrosion Protection	
TiO ₂ - Polyurethane Cocopol Blend Nanocomposites as an Anticorrosion Coating for Mild Steel	
A.G. Ruda, M.T. Bonilla, K.S.M. Ubas, A.C. Tilendo, D.J.E. Estrada, R. Capangpangan, R.M.T. Cumba, J.P. Labis, N.L.B. Sayson and A.C. Alguno	43
Effect of Gadolinium Content on the Microstructures and Corrosion Properties of Mg-4Zn-3Gd Alloy	51
M. Khanam, C. Kumar Roy and H.M.M. Al Rashed Corrosion Inhibitive Effects of Orange Juice for Brass in Acidic Medium 5M H ₂ SO ₄ L. Lebea and M. Pita	59
Investigation of the Adsorption Characteristics of <i>Theobroma cacao</i> Peels Biomass Inhibitors on Mild Steel Surfaces by EIS, SEM-EDX, XPS, and Chemical Studies in Acidic Media	
Y. Yetri, G. Gunawarman, R. Rakiman, A.Y. Rivai and I. Nur	69
Effects of Sn on Corrosion Resistance of Rare-Earth-Free Mg-2Zn Alloy A. Tasnim, C. Kumar Roy and H.M.M. Al Rashed	83
Chapter 4: Numerical Investigations and Modelling	
Mitigation of Erosion Wear Produced by Fly-Ash Slurry on 90 ⁰ Elbow by Changing the Cross-Section Shape and Area Ratio L. Ananya and V.K. Patel	93
Integrated Phase Field and Machine Learning Study of Microstructure Evolution during Interface-Controlled Spinodal Decomposition	73
O. Ahmad, R. Maurya, R. Mukherjee and S. Bhowmick	101
Exploring Sintering, Densification, and Mechanical Behaviour of Invar Alloys through Molecular Dynamics Simulations	107
S.K. Sahni, S. Bhowmick and A. Upadhyaya Thermostamping Simulation of a Carbon Fiber-Reinforced PAEK Composite Stringer	107
A. Haris, Y.W. Cheah and W.S. Teo	113