

# Table of Contents

## Preface

## Chapter 1: Structural Metals

### **Carbon and Titanium Effect on Tensile Behavior of Aged A286 Nickel-Iron Based Superalloy**

U. Ali, M.S. Qurashi, P.O. Lartey, I. Ali, P.K. Liaw and J.W. Qiao 3

### **The Liquid Fraction of ZA27 Zinc Alloy from TLP Diffusion Bonding Affecting Mechanical Properties and Microstructural Characterizations of SSC-ADC12 Aluminum Alloy**

C. Meengam, Y. Dunyakul and D. Maunkhaw 11

### **Analysis of the Behavior of Different Steel Alloys Subjected to Uniaxial Mechanical Fully Reversed Fatigue Tests**

J. Brnic, M. Brcic and S. Krscanski 19

## Chapter 2: Materials Corrosion

### **Development and Evaluation of Corrosion Resistance and Hydrophobic Properties of Thermal Sprayed Coatings over Carbon Steel**

P. Nanou, J. Konstantaras, A. Zarkadoulas, L. Montorsi, H. Jouhara and V.N. Stathopoulos 27

### **Electrochemistry Numerical Study of Stress Corrosion Cracking under Near-Neutral Soil Solution**

A. Alsit, H. Hamdan, M. Alkhedher, M. Ramadan and I. Al-Adwan 37

## Chapter 3: Computational Materials Science

### **The Design and Analysis of Topological Phononic Crystals with Cavity**

J.Y. Yeh 47

### **Towards Systematization of Aurivillius Phases' Formula**

M. Mouzai and S. Oukid 53

## Chapter 4: Wastewater Treatment Techniques for Dye Removal

### **Profile of the Adsorption Ability of Sulfonate-Modified Lignocellulose Based on Bagasse Waste to Some Batik Textile Dyes**

S.B. Utomo, M.I. Fadillah and R. Yulianti 61

### **The Effectiveness of Arenga Pinnata Fiber Carbon Modified with Iron Oxide as an Adsorbent for Various Cationic Dyes**

L. Mahardiani, E. Nugrahini, W. Ciptonugroho, E. Susilowati and S. Saputro 71

### **Bentonite Impregnation Ammonium-Assisted as Eco-Friendly Dye Adsorbent: Analyses of Kinetics and Thermodynamics in Cationic Dye Adsorption**

Y.M. Hakim, I. Royani, M. Mardiyanto and R. Mohadi 85

### **Coconut Shell Charcoal Combination with Teakwood Sawdust (CSC-TS): An Effective Low-Cost Adsorbent for the Removal Cr(VI) Ion on Industrial Waste**

M. Masykuri and A.R. Zain 103

## Chapter 5: Green Building Materials

### **Experimental Investigation on Tensile Strength of Twisted Ramie Fiber Yarns**

M. Maidina, F. Muslim, S. Sudarmanto, D. Purnomo, A. Sumarno and H. Purnomo 119

### **Terahertz Optical Properties of Graphite-Cement Paste**

J.L. Castro, D.J.C. Nagal, A.L.C. Jusi, M. Madlangbayan, A.E. De Los Reyes and A.K.G. Tapia 125

<b>Durability Performance of Reinforced Concrete-Based Fly Ash Exposed to Combined Chloride-Sulfate Attack</b>	131
A. Ebouh, A. Echhebab, S. Hassi, M. Galai, H. Benqlilou and M. Ebn Touhami	
<b>Corrosion Resistance Enhancement of Reinforced Concrete in Marine Environment by Partial Replacement of Black Rice Husk Ash</b>	137
W. Chandra-Ambhorn, E. Bumrungthaichaichan, C. Rotchan, N. Haema, P. Wongpromrat and S. Wattananusorn	
<b>Characterization of Coconut Husk Ash as Potential Substitute for Fly Ash in Geopolymer Concrete</b>	145
J.K. Lorenzo, A.R. Andal, A.J. Morales, J.J. Davantes and M.A.M. Taguba	

## Chapter 6: Structural Mechanics

<b>Analysis of the Effect of Slenderness Ratio on Nominal Moment in T Section</b>	155
T.H. Chang, H.C. Chung, K.Z. Ho and W.T. Hsu	
<b>Lateral Torsional Buckling Strength Analysis of Single Symmetric I-Beam Section</b>	161
W.H. Hsu, C.H. Liu, K.Z. Ho and W.T. Hsu	

## Chapter 7: Mechanical Engineering and Production Processes

<b>Air Preheater Performance Analysis: Installation of Soft Seal Material to Improve Air Preheater Leakage</b>	169
F.J.A. Monsanto and R. Tayactac	
<b>Effects of Holding Time and Temperature of Creasing Knife on Crease Bending Characteristics of Milk Carton Subjected to Indentation of Flat-Edge Creasing Knife</b>	179
S. Nagasawa and T. Nagumo	

## Chapter 8: Non-Destructive Testing

<b>An Accurate Detection and Location of Weld Surface Defect Based on Laser Vision</b>	197
C. Chen, S. Li and Y.F. Chen	
<b>Research on the Repair Quality of Crack in Concrete Structures by Stress Waves</b>	209
K. Hsu, J. Cai, W. Yang and X. Cai	
<b>Laser Doppler in Green Compact Density Inspection of Powder Metallurgy</b>	215
W. Yuan, W.P. Yung, H.Y. Ju, Y.K. Hung, C.S. Kuei and C.C. Yi	