

# Table of Contents

## Preface

## Chapter 1: Properties and Processing Technologies of the Structural Steels and Alloys

<b>Effect of Final Rapid Cooling Temperature on Ultra-Fine Carbides of Ti-Mo Ferrite Matrix Microalloyed Steel</b>	
Z.C. Yu, Z.L. Mi, Q.W. Cai, J. Guo and N. Gong	3
<b>Modelling of the Parameters of EDM in Gas Based on Back Propagation Neural Network</b>	
Y.C. Lin, H.M. Chow, H.M. Lee and J.F. Liu	11
<b>Mechanical Interlocking of an Aluminum Alloy and SS400 Structural Steel through Friction-Stir Spot Forming (FSSF)</b>	
H.M. Tabatabaei, R. Ishikawa and T. Nishihara	17

## Chapter 2: Corrosion Protection

<b>A Study on Galvanic Current Variation of Zn Sacrificial Anode Made by Including of Additive in Solutions with Various Conductivities</b>	
K.M. Moon, M.H. Lee and T.S. Baek	25
<b>Effect of Osmotic Pressure by Salt Concentration on Corrosion Resistance of Anti-Corrosive Paint</b>	
K.M. Moon, M.H. Lee and T.S. Baek	31

## Chapter 3: Polymers, Composites and Ceramics

<b>Synthesis and Properties of Phenyl Silicone Resin Reinforced Addition Type Liquid Phenyl Silicone Rubber</b>	
D. Peng, Q.H. Mu, S. Zhang, J.H. Li and F. Wang	39
<b>Thermal Stability and Kinetics of the Thermal Degradation of Thermal Conductive Silicone Rubber Filled with <math>Al_2O_3</math> and ZnO</b>	
Q.H. Mu, D. Peng, F. Wang, J.H. Li and S. Zhang	45
<b>Investigation of the Influence of Heat Treatment on the Strength of Sandwich Structures</b>	
A.E. Protsenko, D.P. Malysheva and V.V. Petrov	51
<b>Study on Sandwich Core Modeling for Structural Analysis of Sandwich Composite Structure</b>	
H.B. Park	57
<b>Study on Precision Polishing of Alumina Ceramics</b>	
L.D. Yang, K.L. Wu, Y.M. Lai and Y.W. Huang	64

## Chapter 4: Nanomaterials

<b>Parylene-Coated Cellulose Nanofiber Films with Improved Oxygen Barrier and Water Resistance</b>	
D.Y.X. Oh	73
<b>The Fabrication of Multicolor Electrochromic Device Based on RGO/BOPP Using Ag Nanoparticles</b>	
A. Buasri, S. Ojchariyakul, P. Kaewmanechai, W. Eakviriyapichat and V. Loryuenyong	79
<b>Investigation on the Strong Light-Matter Interaction in the Graphene-Perovskite Heterostructure Photodetector</b>	
Q. Yuan, W.Z. Yu, J. Yuan, Y.S. Wang, X.F. Li and S.J. Li	85

## **Chapter 5: Biomaterials and Materials in Biotechnologies**

### **Osteogenic Response of Osteoblastic Cells to Root-End Filling Materials**

E.R. Na, J.W. Moon and Y.J. Kim

95

### **The Application of Modified Marlstones in Biofuel Technology**

A. Buasri, W. Promsupa, S. Wannato, S. Wanta and V. Loryuenyong

101

## **Chapter 6: Building Materials**

### **Effects of Rubber Particles on Rheological and Mechanical Properties of Concrete Containing CaCO<sub>3</sub> Nanoparticles**

L. Wang and B.D. Zhao

109

### **Possibilities of Using Clinical Waste Combustion Products as an Aggregate in Manufacturing Construction Materials**

S.G. Sheina, J. McQuaid-Cook, L. Babenko and A. Khatuntseva

115

### **Concrete Properties for Long-Span Post-Tensioned Slabs**

R. Szydłowski

122

### **Laboratory Tests of the Fissure Impervious Materials in Longmen Grottoes**

B. Sun and Y. Fang

128

### **Properties of Alkali-Activated Waste Glass-Cement Cementitious Materials**

W.J. Yao, L. Fan and G.Y. Liu

134

### **Lightweight Aggregate Concrete as an Alternative for Dense Concrete in Post-Tensioned Concrete Slab**

M. Mieszczak and L. Domagała

140