

# Table of Contents

## Preface

## Chapter 1: Polymers and Composites

### Durability of China Jute Fiber/Polylactide Composite in Indoor Environment: A 15-Year Follow-Up Study

Q. Ren and R.H. Hu

3

### Ring-Opening Polymerization of $\epsilon$ -Caprolactone with Anhydrous Iron (III) Chloride as Catalyst

J.B. Zhang

9

### Life Assessment of the Fluoro-Rubber Sealing Gasket Based on an Accelerated Degradation Test

D.S. Ma, H.Y. Huang, Z.Q. Shao and M. Zhu

15

## Chapter 2: Functional Materials

### Development of a Method for Silica-Coating of Ruby Particles

M. Ito, N. Yamauchi, K. Nakashima and Y. Kobayashi

25

### Inkjet-Printed Liquid Gated Graphene Field Effect Transistor for the Detection of Interleukin-6

A.V.A. Jabines and E.P. Enriquez

33

### ZnO/GO Composite as Electrochemical Sensor for GABA Detection

O. Jongprateep, S. Pitiphattharabun, K. Lanamkham, G. Panomsuwan and J. Ohta

41

### Calcium Alginate-Glycerol Gel as an Organic Matrix to Induce the Mineralisation and Growth of Calcium Carbonate as a New Eco-Friendly Binder Composite

O.d.S.H. Santos, W. Tian, K.M. Tse and Y.L. Li

49

### Revolutionizing Antibacterial Material Production across Diverse Applications through Enhanced Fused Deposition Modeling Innovation

W. Ahmed, A.H. Al-Marzouqi, E. Zaneldin, T.A. Rizvi and M. Khan

61

### Enhancing the Thermal Conductivity of 1-OD/Indium Composite Phase Change Material for Thermal Energy Storage

K. Pashayi and K.J. Kolonko

69

### Vitrimer Materials: A Review of Self-Healing Properties

R. Hayder, S. Kedziora and V. Panneer Selvam

79

## Chapter 3: Corrosion, Protective Coatings and Surface Treatment

### Preparation and Coating Properties of Core-Shell Silicon-Acrylic Emulsions

K.X. Zhu and Y.M. Wu

93

### Research on Corrosion Resistance of Plasma Nitriding Modified Layer on Stainless Steel Metal Bipolar Plate

L. Shen, Z.F. hui, S.J. Mi, J.H. Sui and P. Sun

99

### Influence of Strip Entry Temperature on Spangle Size of Hot-Dip 55%Al-Zn-Si Coated Steel Sheets

Y.P. Li, P. Liu, S.M. Jiang, J. Zhang and Q.F. Zhang

105