

# Table of Contents

## Preface

## Chapter 1: Structural Metals Processing

<b>Parameter Design of Sand Casting to Minimize Shrinkage Defects, Porosity Defects and Incomplete Defects</b> S.R. Muzaqqi, S. Suprayitno and Y.R.A. Pradana	3
<b>Hardness and Microstructure of TiN Coating on Aluminum Alloy with DC Sputtering</b> M. Margono, D.B. Darmadi, T.D. Widodo, S. Suprpto, T. Sujitno and M. Kozin	11

## Chapter 2: Friction Stir Welding

<b>Friction Stir Welding between Marine Grade Aa 5083 and HSLA Steel</b> M. Sahu and S. Ganguly	21
<b>Microstructure and Mechanical Characteristics of Friction Welded Joint between Alumina and Aluminum Casting Alloy</b> T. Takahashi, S.T. Nguyen and M. Kimura	27
<b>Optimizing Micro Friction Stir Spot Welding (mFSSW) of Aluminum Alloy AA1100 Using Neural Network Model</b> T.H.S. Atmaja, L.A. Safitri, P. Rupajati and A.S. Baskoro	35
<b>The Effect of Friction Stir Weld (FSW) Process Parameters on Tensile Strength, Macro Structure, and Hardness in Results of AA7075 Butt Joints</b> M.F. Ardiansyah, L.A. Safitri, P. Rupajati and A.S. Baskoro	43

## Chapter 3: Polymers and Composites

<b>Incorporating Graphene Nanofiller for the Improvement of Hydrophobic Properties of Cassava Peel Starch Bioplastic</b> A.N.F. Ganda, D. Wulandari, F.Y. Utama, W. Warju, D. Riandadari, D. Puspitasari and L.C. Manggalasari	53
<b>The Effect of Bleaching Variation on Schoutenia Ovata Korth Fiber as a Composite Reinforcement</b> A. Andoko and R. Prasetya	59
<b>Microcrystalline Cellulose as Composite Reinforcement: Assessment and Future Prospects</b> C.H. Wibowo, D. Ariawan, E. Surojo and S. Sunardi	65
<b>Effect of Silanized Zirconium Oxide (ZrO<sub>2</sub>) Filler on Hardness of Acrylic-Based Denture Teeth</b> H.H. Ilma, F.R. Ashary, F.K. Asghar, A.I. Kaloka, B. Airlangga and S. Sumarno	81

## Chapter 4: Recycling and Applications of Natural Materials

<b>Influence of Orthophosphoric Acid Activation on the Quality of Activated Carbons</b> M.N. Amadou Kiari, A.T.S. Konan, O. Sanda Mamane, H. Kone, G.D. Fanou, M. Siragi Dounounou Boukari, M.H. Ibrahim Grema, M.M. Malam Alma and K.B. Yao	91
<b>Physical and Morphological Characterisation of Typha Australis Fibres</b> A. Gaye, N.A. Sène, V. Sambou, P. Balland and P.B. Gning	99
<b>Optimization of the Co-Production between the Rice Husk and the Pulp of the Cashew Apple Produced in the Natural Region of Casamance</b> O.K. Faye, P.B. Himbane and L.G. Ndiaye	111
<b>Study of the Physic-Mechanical Properties of a Typha Concrete Composites: A Possible New Material for Sustainable Construction</b> E.M. Elhaj-Maham, B. Diouf, E.H.B. Ly and M. Manga	121

<b>Normal Water Effect on the Thermal and the Mechanical Properties of Jute Yarns</b> Y. Ben Smail, F. Lmai, A. El Moumen and A. Imad	133
<b>Optimizing Aluminum Melting with Sustainable Biomass Fuels: A Case Study of Ulin (<i>Eusideroxylon zwageri</i>) Wood and Galam (<i>Melaleuca cajuputi</i>) Wood</b> T. Suprianto, M. Kasim, A. Ela Heka and D. Darmansyah	145