

Table of Contents

Preface

Chapter 1: Metallurgical Technologies

Microstructure of Al-2%Si and Al-6%Si Strips Cast Using Vertical-Type High-Speed Twin-Roll Caster T. Haga, K. Yamazaki, H. Watari and S. Nishida	3
Reduction of Surface Cracking on Al-4.6%Mg Strips Cast Using a Vertical-Type High-Speed Twin Roll Caster with a Grooved Roll T. Haga, K. Yamazaki, H. Watari and S. Nishida	9
A Preliminary Investigation on Metal Injection Moulding of 316L Stainless Steel Dental Pin for Orthodontics Application T. Patcharawit, N. Chalongkittisak, S. Yimyoo, W. Sawatdikomon, M. Morakotjinda and N. Chuankrerkkul	15
Investigation on Ni-Al Intermetallic Compounds Fabricated through Reactive Sintering Processes P. Azhagarsamy, K. Sekar and K.P. Murali	23

Chapter 2: Cladding

Research and Development Status of Laser Cladding on Stainless Steel Alloys: A Review S.B. Rao, K. Venkadeshwaran and Y.N. Shivaprasad	35
Effect of Niobium (Nb) Content on Alloy 625 Weld Overlay R.G. Tayactac, M.C. Manuel, J. Honra, T.B. Kasparly, R.C. de Medeiros and A.B. Farina	55

Chapter 3: Drilling

An Effectiveness in Manufacturing Quality on Surface Roughness and Built-Up Edge in Drilling Operation towards Aircraft Component M.R. Ibrahim, A. Ahmad, A. Ibrahim, N.A. Samsudin, M.S. Mustapa, K. Cheng and B.H. Chong	67
Study of Hole Cylindricity and Surface Roughness in Drilling Application on Aircraft Wings M.R. Ibrahim, N.A. binti Radzali, M.S. Mustapa, Z. Mohid, B.H. Chong and K. Cheng	75

Chapter 4: Friction Stir Welding

A Novel Procedure for Friction Stir Welding Aluminium to Copper by Using an Aluminium Run-On Plate R. Beygi, I. Galvão, F. Nematzadeh, C. Leitão, R.M. Leal and L.F.M. da Silva	83
Predicting Axial Force in Friction Stir Welded Joints of AA7075-T6 and AA2024-T3 Using Machine Learning Techniques A. Baisukhan and W. Nakkiew	91
Microstructure and Mechanical Properties of Friction Stir Dissimilar Welding of Pure Ti and 6061 Aluminum Alloy C. Cheng and C. Kuo	97
Characterization and Eddy Current Flaw Detection of Dissimilar Aluminium Butt Joint by Friction Stir Welding K. Sekar and P. Vasanthakumar	103
Numerical Modelling and Experimental Validation of Dissimilar Aluminium 2014 and 7075-SiC Composite by Friction Stir Welding K. Sekar and P. Vasanthakumar	115

Multiple Response Optimization of Dissimilar Friction Stir Welding on 6061-T6 Aluminum Alloy and AZ31B Magnesium Alloy

K.P. Vasantha Kumar, M. Balasubramanian and K. Arumagam

125

Chapter 5: Additive Manufacturing

Study on Recyclebot with 3D Printing Wastes for Circular Economy

J.J. Ezhilan, A. Damodaran and K.G. Ashok

135

Design and Optimization of 4D Printed Carbon Fiber Reinforced Poly Lactic Acid Parts Using Fused Deposition Modeling for Shape Memory Applications: A Taguchi Approach

P. Venkatesh, P.V. Krishna, B.U. Kiran, B.L. Rao, P.R.V. Kumar, B.N. Dhanunjayarao, N.V.S. Naidu, Y. Phaneendra and A.B. Beera

143

Influence of Printing Parameters on Mechanical Behavior of 3D-Printed PLA Using Taguchi Based ANFIS Technique

B. Vinay, A. Kumar Raja, D. Ganesh, A. Sasi Kiran, B.G.S. Chandra Mouli, V.S.V. Satyanarayana and I. Kakaravada

159

Parametric Modeling for Optimization of Deposition Rate in Wire Arc Additive Manufacturing of AISI 410 Stainless Steel Using Bead-on-Plate Specimens

J. Pradeep Kumar, R. Arun Prakash, M. Kanmani, R. Jaanaki Raman and N. Jerome Festus

175