

Table of Contents

Preface

Chapter 1: Alloys

A Study on Grain Refinement of Aluminum Alloys by Adding Grain Refiners and Severe Plastic Deformation: A Review S. Mohan Raju, C.M. Ramesha, T. Anilkumar, S. Krishna, S. Appaiah and P. Rajendra	3
A Survey on Microhardness, Tensile and Microstructural Properties of Aluminium and its Alloys by Friction Stir Welding Process A. Kunchammed, A.K. Vagge, S. Praharsh, M.A. Bukhari, S. Patil and R. Biradar	17
Severe Plastic Deformation of Nanocrystalline AZ61 Magnesium Alloy Composites Prepared by Spark Plasma Sintering Technique P. Mansoor and S.M. Dasharath	25
Crack Propagation Behaviour under Corrosion and Thermomechanical Loads I. Alqahtani, A. Starr and M. Khan	37

Chapter 2: Materials Processing and Forming

Studies of Al2219-SiC Composite Using Liquid Metallurgy: Effect of Mechanical and Wear Properties K. Bhole, C. Dheeraj, L.H. Manjunath, C.R.G. Karthikeyan, A. Arudra, S.N. Vamsi Ganesh, N.R. Thyagaraj and M. Ravi Kumar	49
Study and Comparative Analysis of Tribological Properties of Copper-Based Alloys Produced by Die Casting Method C. Siddaraju, R. Ranganatha, S.N. Nagesh, B. Shivukumara and H.S. Balasubramanya	61
Effect of Nanofluid in Plate Heat Exchanger S. Torii	73

Chapter 3: Additive Manufacturing

Process Parameters Studies on Density and Hardness of AlSi7Mg Alloy Developed by DMLS Method K. Bhole, L.H. Manjunath, N.R. Thyagaraj, M. Ravi Kumar and B. Rose Vergis	83
Microstructural and Mechanical Property Evaluation of Al-10 MgSi Alloy Processed through Additive Manufacturing Technique S. Devaraj, V.K. Shamanth, H.K. Chandra Mohan, K.S.R. Narayana Swamy, K. Hemanth and B.K. Venkatesh	91
Experimental Investigation on Machine Tool Vibration during Machining of En-31 Carbon Steel Material A.A. Shaikh and K. Lokesh	97

Chapter 4: Processes Simulation

Effects of Higher Lattice Temperatures on 2D MC Simulation of Grain Growth and its Inhibition P. Rajendra, K.R. Phaneesh, C.M. Ramesha and M. Nagaral	125
Distributed Photovoltaic/Battery Power Systems with a Three-Portpower Converter Based on Fopid Control Strategy V.J. Manohar, R.A. Johnson, K. Mahesh and S.B. Boppana	137