

Table of Contents

Preface

Chapter 1: Properties and Processing Technologies of Steel and Alloys

Study of the Effect on Friction Welded Surface on Copper Aluminium Juncture M. Senthilkumar, L.K. Singh, S. Lakshmanan, A.M. Shanawaz and M. Selwin	3
Optimization and Performance of Laser Machining on Domex Steel B. Manikandan, G. Harinarayanan, V. Surender, D. Ravi and A.K. Vishvakarma	9
Wear Behavior and Wear Worn Surface Analysis on Hardox Steel G. Harinarayanan, V.K. Krishnan, M.P. Natarajan, V. Surender and J. Gowthaman	17
Optimization of Quench Polish Quench (QPQ) Coating Process Using Taguchi Method M. Saravanan, M. Vasanth, S. Boopathi, M. Sureshkumar and V. Haribalaji	23

Chapter 2: Cryogenic Treatment of Metal

Investigation of Cryogenic Thermal Conductivity of AA7115 Subjected to Various Heat Treatments K. Arunprasath, M. Muthumalai, S. Kavitha and T.R. Vijayaram	35
Impact of Single and Duplex Cryogenic Jets on Mechanical and Physical Characteristics in Turning of Titanium Superalloys A. Shanmuga Vadive, P. Selvakumar, P. Mathan and P. Ramkumar	45
Influence of Cryogenic Behaviour on Copper Electrode for Non-Conventional EDM V. Manikandan, Y. Varuvel Antony, P. Mohemedsharifkhan, P. Yuvannarasimman and K. Senthilnathan	59
Stir Casting and Successive Rolling of Aluminium Alloy 2218 MMCs Reinforced by High-Entropy Alloy Particles M. Vijayakumar, M. Pradeep Rai, M. Muthukrishnan and N. Gnanakumar	71

Chapter 3: Composite Materials

Effect of Natural Filler on Natural Fibre Hybrid Composite P.S.V. Reddy, K. Sravanthi and S.P. Jani	83
Investigation on Flexural Property of Sandwich 3D Printed PLA Components - A Review M. Subramaniyan, S. Karuppan, G.P.P. Kumar, T. Peranandhan and M. Praveen	91
Study of the Mechanical Properties of the Copper Matrix Composites (CMCs): A Review N. Poullose, P. Selvakumar, J.T. Philip, A. Ananthi and S. Kavitha	103
Mechanical Property Analysis of Surface Modified Natural Fiber/Filler Hybrid Composite A. Yesham, S.P. Jani and S. Jose	127
Influences of Fabrication Parameters on Natural Fiber Reinforced Polymer Composite (NFRPC) Material: A Review S. Boopathi, M. Sureshkumar, M. Jeyakumar, R.S. Kumar and R. Subbiah	135
Wear Behavior of Ti6Al4V Based Hybrid Composites Reinforced with TiB₂(7.5%) + TiC (7.5%) P. Anbarasan, M. Anandajothi and M. Rajamuthamilselvan	145

Chapter 4: Concrete

Mechanical Properties of Steel Fiber Reinforced Geopolymer Concrete Incorporated with Fly-Ash and GGBS J.S. Babu and K. Sai Kumar	155
Development of Low Calcium Fly-Ash Based Geopolymer Concrete Using Marble Powder J. Rex and B. Vikram	163