

Table of Contents

Preface

Chapter 1: Additive Manufacturing

Determination of Suitable Geometrical Ranges for the Manufacture of Microfluidic Channels by Low-Cost Additive Manufacturing Techniques A. Garcia-Dominguez, J. Ayllón, A. Rodríguez-Prieto, J. Claver, O. Monago-Maraña, A.G. Crevillén and A.M. Camacho	3
Soluble vs Non-Soluble Support Materials for Bone 3D Printed Anatomical Models: A Comparison on Production Time, Cost and Finish Quality M. Engli Rueda, N.A. Gomez, G.M. Navarro, J.M. del Cerro and A. Valls Esteve	13
Development and Optimization of Processing Parameters of 316L Stainless Steel and Inconel 718 by Wire Feed Direct Energy Deposition/Laser Beam (W-DED/LB) J. Santaolaya, J. Sogorb, I. González-Barba, A. Perinán and F. Lasagni	21
Influence of PMMA 3D Printing Geometries on the Mechanical Response C. Rufo-Martín, J. Díaz-Álvarez and D. Infante-García	31
Desiccant Dehumidification System Developed Using Additive Manufacturing and Biodegradable Materials F. Comino, P.E. Romero, E. Molero and M. Ruiz de Adana	41
High Compactness Heat Exchanger Manufactured Using Stereolithography Technology and Photosensitive Resin P.E. Romero, F. Comino, E. Molero and M. Ruiz de Adana	49
Effect of Printing Orientation on Product Quality and Overall Process Efficiency: an Experimental Investigation A. Greco, P. Manco, M. Fera, P. Maresca and S. Gerbino	57
Design of Supports to Avoid Deformations in the Process of Alumina Printing by Stereolithography S. Martínez-Pellitero, A.M. Souto, S. Peláez Peláez, J. Barreiro García and M.Á. Castro Sastre	67
Evaluation of Metallic Parts Defects to Determine Repair Process Strategies through Laser Metal Deposition M.O. da Cruz, D.G. Afonso and M.A.R. de Oliveira	77
Material Extrusion of 3D Printed Ceramics Parts: Parameters, Structures and Challenges I. Buj-Corral, A. Tejo-Otero, F. Fenollosa-Artés, R. Uceda-Molera, J. Elmesbahi and A. Elmesbahi	89
Optimization of Sandblasting to Improve the Surface Finish of 17-4PH Parts Manufactured by SLM Using Different Laser Scanning Strategies S. Giganto, S. Martínez-Pellitero, P. Rodríguez-Mateos, N. Soni and J. Barreiro García	97
Recipe to Strengthen Continuous Fiber Reinforced 3D Printed Parts A.J. García Collado, G. Medina Sánchez, M.F. Guerrero-Villar and R.D. Vicente	105
Weighting of Criteria for the Application of the Analytical Hierarchy Process (AHP) in the Selection of FDM Equipment through the Design of an Artefact D.S. Pérez, A. Garcia-Dominguez and J. Claver	111
The Use of Cork and Silicone Rubber with Embedded Sensors in Sports' Smart Protections: Studies on the Impact Absorption Performance A. Pereira, D.G. Afonso, L. Pires and V. Clemente	119
The Effect of Design and Fabrication Parameters on the Mechanical Properties of 3D Re-Entrant Honeycomb Auxetic Structures A. Garcia-Dominguez, A. Rodríguez-Prieto, J. Ayllón, J. Claver, J. Rodríguez-Hernández and A.M. Camacho	131
Generation and Characterization Metrology of Textures for Design of Urban Furniture with Recycled Material - A Case of Study for Additive Manufacturing L. Rodríguez-Parada, S. De la Rosa, M.Á. Pardo-Vicente, J.R. Méndez-Salgueiro and P.F. Mayuet	139

Laser Powder Bed Fusion (L-PBF) for Cellular Structures Formed by a Heterogeneous Skeleton	
H.G. Barrio, A.C. Ochoa, G.G. Escudero, S. Mishra, M.M. de Aguirre, A.L. Mentxaka and L.N.L. de Lacalle	149
Design of Pastes for Direct Ink Writing of Zirconia Parts with Medical Applications	
I. Buj-Corral, J.A. Padilla, J. Minguella-Canela, L. Roderó, L. Marco and E. Xuriguera	157
On the Processability of Aluminium Alloys by PBF-L/M Additive Manufacturing Technology	
I. González-Barba, A. Perinán, J. Santaolaya, Á. Nieto, C. Galleguillos, D. Hervás and F. Lasagni	165

Chapter 2: Sustainable Materials

Foam Glass Fabrication from End-of-Life Blended LCD Screen, Photovoltaic Glass Cullet and Flat Glass	
T. Patcharawit, C. Kansomket, C. Longbutsri, N. Mahiwan, T. Tannukit and S. Khumkoa	177
Tensile Property of Jute Fiber Sliver Reinforced Green Composite Material under Loading Speed	
H. Katogi	187

Chapter 3: Building Materials

Developing Mixed-Mode (I/II) Fracture Resistance Curves for Asphalt Concrete Mixtures at Low Temperatures	
S. Ghafari and F.M. Nejad	195
Analyses of the Structure Formation of Constructional Complex Mixtures Developed on a Local Raw Basis and their Behaviour in a Chemically Aggressive Environment	
H. Karamyan, A. Sahakov, A. Aperyán, M. Badalyan and A. Baghdadyulyan	201