

# Table of Contents

## Preface

|                                                                                                                                                             |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Modeling Residual Stresses in Superduplex Stainless Steel Welded Pipes Using the Finite Element Method</b>                                               |     |
| F. Rezende, L.F.G. de Souza and P.M. Calas Lopes Pacheco                                                                                                    | 1   |
| <b>Analysis of the Temperature Distribution in Friction Stir Welding Using the Finite Element Method</b>                                                    |     |
| M. Rangel Pacheco and P.M. Calas Lopes Pacheco                                                                                                              | 11  |
| <b>Influence of Chemical Composition and Post Welding Heat Treatment on the Microstructure and Mechanical Properties of High Strength Steel Weld Metals</b> |     |
| A.J.M. Gomes, J.C.F. Jorge, L.F.G. de Souza and I.d.S. Bott                                                                                                 | 21  |
| <b>Influence of Welding Parameters in Substrate/Coating of Galvanized Sheets Using Resistance Spot Welding</b>                                              |     |
| J. Silva Dias, H.R.M. Costa, R.A.A. de Aguiar, R. de Araujo Alves Lima, M.L.A. Cunha and R.F. Ferreira                                                      | 33  |
| <b>Cobalt-Base Superalloy Coating Using GTAW Process</b>                                                                                                    |     |
| F.d.S. de Souza Royse, I.N. Bastos and H.R.M. Costa                                                                                                         | 41  |
| <b>Study of Mechanical Properties in the Interface Applied in Thick Coatings Obtained by Thermal Spraying</b>                                               |     |
| Y. Alves, J. Barbosa, A. Costa and P. Araújo                                                                                                                | 49  |
| <b>A Methodology for Evaluation of Life Fraction Using Cr-Mo Steel under Creep Conditions</b>                                                               |     |
| M.A. da Silva, J.C.G. Teixeira, A.S. Guimarães, I.d.S. Bott and H.R.M. Costa                                                                                | 57  |
| <b>Failure Pressure Estimations for Corroded Pipelines</b>                                                                                                  |     |
| M.L. da Silva and H. da Costa Mattos                                                                                                                        | 65  |
| <b>Corrosion Fatigue Behavior of Flexible Pipe Tensile Armor Wires in a CO<sub>2</sub> Environment</b>                                                      |     |
| F. Santos, F. Pires, R. Clements, J. Clevelario, T. Sheldrake, L.F.G. de Souza and P.P. Kenedi                                                              | 77  |
| <b>Monitoring Fatigue Crack Growth in Fracture Mechanics Specimens with Piezoelectric Sensors</b>                                                           |     |
| A.L. Gama and S.R.K. Morikawa                                                                                                                               | 83  |
| <b>Development of a Methodology to Determine Thickness Measurement Uncertainties by Ultrasonic Test in Aerospace Parts</b>                                  |     |
| B.C. de Andrade Silva, M.S. Motta and J.E.F. de Oliveira                                                                                                    | 89  |
| <b>Evolution and Prediction of Texture in Commercially Pure Warm Rolled Titanium</b>                                                                        |     |
| L.S.C. Raptopoulos, G.A. Castello-Branco, C.M.B. Bacaltchuk, I. Dragomir-Cernatescu and H. Garmestani                                                       | 99  |
| <b>Grain Size Distribution on Annealed Silicon Steel</b>                                                                                                    |     |
| C.M.B. Bacaltchuk, G.A. Castello-Branco and L.S.C. Raptopoulos                                                                                              | 107 |
| <b>Magnetic Annealing on GNO Electrical Steel Fe-3.25% Si</b>                                                                                               |     |
| G.A. Castello-Branco, J.N. Muller and C.M.B. Bacaltchuk                                                                                                     | 113 |
| <b>Temperature Effect on the Shear Strength of Adhesively Bonded Joints</b>                                                                                 |     |
| K.R. Osanai and J.M.L. Reis                                                                                                                                 | 119 |
| <b>Numerical Simulation of Metal/Cement Push-Out Test</b>                                                                                                   |     |
| J.F. da Silva Neto, E.P. da Silva, W.G.M. de Farias, A.A. de Albuquerque, S.M. Torres and S.R. de Barros                                                    | 125 |
| <b>Geopolymeric Adhesives for Joint Steel Plates</b>                                                                                                        |     |
| K.C. Gomes, E.C. de Lira, A.R.R. de Sousa, M. Rosas, S.M. Torres and S.R. de Barros                                                                         | 133 |
| <b>Mechanical Performance of Natural Fibers Reinforced Geopolymer Composites</b>                                                                            |     |
| E.A.S. Correia, S.M. Torres, M.E. de Oliveira Alexandre, K.C. Gomes, N. P. Barbosa and S.R. de Barros                                                       | 139 |
| <b>Shape Memory Alloy Helical Springs Performance: Modeling and Experimental Analysis</b>                                                                   |     |
| R.A.A. de Aguiar, W.C. de Castro Leão Neto, M.A. Savi and P.M. Calas Lopes Pacheco                                                                          | 147 |
| <b>Effect of the Cutting Velocity and Heat Treatment on Turning Cutting Forces of an SMA Cu-Al-Be Alloys</b>                                                |     |
| F.V. Pereira da Silva, J.P. Vogel, R.M. Gomes, T.A.d.A. Melo, A.C. Araujo and S.R. de Barros                                                                | 157 |
| <b>Dynamics of 2-DOF Micro-End-Milling System Considering Grain-Size Variation</b>                                                                          |     |
| A.C. Araujo, M.A. Savi and P.M. Calas Lopes Pacheco                                                                                                         | 165 |