

# Table of Contents

## Preface

|                                                                                                                                                                                                                                        |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Internal Deterioration of Mortars in Freeze-Thawing: Non-Destructive Evaluation by Means of Electrical Impedance</b><br>E. Menéndez, J. de Frutos and C. Andrade                                                                    | 1   |
| <b>A New Measuring System for Determining the Magnetic Viscosity in Permanent Magnets</b><br>J.H. Espina-Hernández, R. Grössinger, R. Sato Turtelli and J.M. Hallen                                                                    | 12  |
| <b>Microstructure Formation of Al-Fe-Mn-Si Aluminides by Pressure-Assisted Reactive Sintering of Elemental Powder Mixtures</b><br>A. Flores, J.A. Toscano, S. Rodríguez, A. Salinas R. and E. Nava-Vázquez                             | 21  |
| <b>Crack Disappearance by High-Temperature Oxidation of Alumina Toughened by Ni Nano-Particles</b><br>A.L. Salas-Villaseñor, J. Lemus-Ruiz, M. Nanko and D. Maruoka                                                                    | 34  |
| <b>Microstructural Characterization of Electro-Deposited CdSe Thin Films</b><br>S. Thanikaikarasan, T. Mahalingam, S.R. Srikumar, T.K. Kim, Y.D. Kim, V. Subramaniam and R. Asomoza                                                    | 44  |
| <b>Effect of pH on Composition, Structure and Magnetic Properties of Electrodeposited Co-Ni Alloys</b><br>T. Mahalingam, K. Sundaram, V. Subramaniam, M. Raja, S. Thanikaikarasan, Y.D. Kim and R. Asomoza                             | 52  |
| <b>Preparation and Microstructural Studies of Electrodeposited FeSe Thin Films</b><br>K.S. Kim, S. Thanikaikarasan, T. Mahalingam, V. Subramaniam, T.K. Kim, Y.D. Kim and R. Asomoza                                                   | 60  |
| <b>Electrochemical Deposition and Characterization of Cd-Fe-Se Thin Films</b><br>S. Thanikaikarasan, T. Mahalingam, K. Sundaram, T.K. Kim, Y.D. Kim and V. Subramaniam                                                                 | 69  |
| <b>Structural and Optical Studies of Hot Wall Vacuum Evaporated CdTeSn Thin Films</b><br>K. Sakthivel, V. Subramaniam, T. Venkatachalam and S. Ganesan                                                                                 | 77  |
| <b>Nanocrystalline <math>\text{Sm}_{0.5}\text{Y}_{0.5}\text{Co}_5</math> Alloys with Enhanced Magnetic Properties</b><br>J.L. Hidalgo-González, J.T. Elizalde Galindo, C.E. Botez and J.A. Matutes-Aquino                              | 84  |
| <b>Electronic Structure of <math>\text{YFe}_2</math> by EELS and <i>Ab Initio</i> Calculations</b><br>E. Yáñez-Terrazas, V. Gallegos-Orozco, J.A. Matutes-Aquino, M.T. Ochoa-Lara and F. Espinosa-Magaña                               | 89  |
| <b>Borides Precipitation in the <math>\text{FeAl}_{40}</math> Intermetallic Compound Produced by Atomization-Deposition Process</b><br>O. Flores, J.M. Zagal, A. Contreras-Cuevas, G. Rosas, R. Pérez and L. Martínez                  | 96  |
| <b>Structural Transformations of Boron Nitride Powders Obtained by Mechanical Milling Process</b><br>R.A. Esparza, J. Ayala, C. Ángeles-Chávez, G. Rosas and R. Pérez                                                                  | 101 |
| <b>Impedance Response of Franklinite Films to Humidity and Propane</b><br>A. Avila-García and C. Torres-Frausto                                                                                                                        | 109 |
| <b>Friction Stir Linear Welding of an Aluminum Alloy</b><br>J. Wong, P. del C. Zambrano, I. Escamilla, B. Gonzalez, V. Mucino and R. Colás                                                                                             | 116 |
| <b>Annealing Effect on Microstructure and Coercivity of <math>\text{YCo}_5</math> Nanoparticles Obtained by Mechanical Milling</b><br>J.T. Elizalde Galindo, R. Sato Turtelli, R. Grössinger and J.A. Matutes-Aquino                   | 122 |
| <b>Joining of WC-Co to Ni by Direct Diffusion Bonding</b><br>J. Lemus-Ruiz, A.L. Salas-Villaseñor and O. Flores                                                                                                                        | 127 |
| <b>Effect of Li on the Corrosion Behavior of Al-Cu/<math>\text{SiC}_p</math> Composites</b><br>J. Lugo-Quintal, L. Díaz-Ballote, L. Veleza and A. Contreras-Cuevas                                                                     | 133 |
| <b>Magnetic and Electronic Properties of the Compound <math>\text{Y}(\text{Co,Fe})_5</math> Calculated by the Augmented Spherical Wave Method</b><br>M.C. Grijalva Castillo and J.A. Matutes-Aquino                                    | 145 |
| <b>Comparative Study of Corrosion in Physiological Serum of Ceramic Coatings Applied on 316L Stainless Steel Substrate</b><br>M.I. Espitia-Cabrera, H.D. Orozco-Hernández, M.A. Espinosa-Medina, L. Martínez and M.E. Contreras-García | 152 |

|                                                                                                                                                                           |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Characterization of Galvannealed HSLA Steels</b>                                                                                                                       |     |
| M. de la Garza, M. Moreno, M.P. Guerrero-Mata, P. del C. Zambrano, R. Colás and Y. Houbaert                                                                               | 159 |
| <b>Characterization of Friction Stir Welding on Aluminum</b>                                                                                                              |     |
| J. Wong, P. del C. Zambrano, M.P. Guerrero-Mata, V. Mucino and R. Colás                                                                                                   | 167 |
| <b>Characterization of Magnetic Particles Using a Wavelet Function</b>                                                                                                    |     |
| H.J. Ochoa Domínguez, P.E. Garcia Casillas, C.A. Martínez Pérez, J.T. Elizalde Galindo, H. Camacho Montes, O.O. Vergara Villegas, E. Gutiérrez Casas and L. Ortega Maynez | 175 |