

Table of Contents

Preface

A New Approach to the Numerical Modeling of Pure Metal Solidification M. Ciesielski and B. Mochnacki	1
Moisture Diffusion in Silica/Clay/Natural Rubber Hybrid Composites B. Pajarito and M.R. Ali	9
Influence of Different Joints on Moisture Transport in Building Walls - A Brief Review A.S. Guimarães, J.M.P.Q. Delgado, V.P. de Freitas and A.C. Azevedo	19
Diffusion Induced Changes in Cast and Wrought M2 High-Speed Steel Subject to Homogenisation Annealing A.S. Chaus, M. Sahul and M. Bračík	24
Hydrogen Distribution in Partly Desorbed MgH₂ Samples S.A. Lushnikov, T.V. Filippova and I.A. Bobrikov	34
Synthesis and Characterization of Fe-Based Nanocomposites F. Otmane, S. Triaa, A. Maali and B. Rekioua	39
Discrete Wavelet Analysis of Electrochemical Current Noise of a High-Alloy Cast Steel in Sulfuric Acid and Sodium Chloride Solution M. Mandel, V. Kietov and L. Krüger	48
Mechanical, Thermal and Electrical Characteristics of Conventionally Cast and Cold-Rolled 5754-Sc-Zr Aluminium Alloy M. Vlach, V. Kodetová, H. Kudrnová, M. Leibner, M. Vlček, V. Šíma, I. Procházka, J. Málek and V. Očenášek	55
Characterization of Cuprous Oxide Thin Films for Application in Solar Cells Ø. Nordseth, I. Chilibon, B.G. Svensson, R. Kumar, S.E. Foss, C. Vasiliu, L. Baschir, D. Savastru, L. Fara, C. Dumitru, S. Fara, F. Dragan, M. Filipescu and R. Trusca	65
Optimization of Holographic Labels for Security Applications R. Tomescu, C.C. Pârvulescu, D. Cristea, B. Bita, B. Comanescu and M. Pelteacu	74
Microstructure and Texture Control in Cold Rolled High Strength Steels S. Janakiram, J.P. Gautam, A. Miroux, J. Moerman and L.A.I. Kestens	84
Investigation of Interdiffusion in High Entropy Alloys: Application of the Random Alloy Model M. Afikuzzaman, I.V. Belova and G.E. Murch	94
The Effect of Incomplete Solution Treatment on the Tensile Behavior and Mechanical Anisotropy of 2195 Aluminum Lithium Alloy W. Walker, R. Marloth, Y.T. Hein and O.S. Es-Said	109
Effect of Heat Treatment on Microstructure and Mechanical Properties of 15-5 pH Stainless Steel for Fastener Applications F. Aldhabib, X.D. Sun, A. Alsumait, F. Alzubi, E. Ashe, K.R. Shen, D.Y. Lu, A. Cheng, K. Tovalin, M. Del Campo, A.G. Taormina, Y.J. Li, B. Ramsey, L. Zeng and O.S. Es-Said	118
Ion Transport in Glass-Forming Calcium Potassium Nitrate: From Complex Behaviours to Unexpected Simplicities K. Funke, R.D. Banhatti and M.D. Ingram	140
Segregation and Phase Transitions in Grain Boundaries B. Bokstein, A. Rodin, A. Itckovich and L. Klinger	160
The Vacancy-Wind Factor and the Manning Factor Occurring in Interdiffusion and Ionic Conductivity in Solids I.V. Belova and G.E. Murch	170