

Table of Contents

Preface

Designing, Processing and Isothermal Transformation of Al-Si Medium Carbon Ultrafine High Strength Bainitic Steel	
S.A. Abd El Rahman, A.Y. Shash, M.K. Elfawkhry, A.Z. Farahat and T. Mattar	1
Metallurgists' Insights on Diffusion-Assisted Dissimilar-Joints of Light- and Heavy-Alloys	
G. Thirunavukarasu, S. Kundu and S. Chatterjee	12
Growth Kinetics and Mechanical Characterization of a Hard Boron Coating on a Tool Steel	
D. Sánchez Huerta, N. López Perrusquia, I. Hilerio Cruz, M.A. Doñu Ruiz, E.D. García Bustos and M. Flores Martínez	29
Structure of Partly Vacuum Extracted MgH₂ Samples	
S.A. Lushnikov, T.V. Filippova and I.A. Bobrikov	35
Control of Particle Size and Morphology of MOF-199 Crystals via a Reaction-Diffusion Framework	
R. Issa, M. Hmadeh and M. Al-Ghoul	39
Transient Liquid Diffusion Bonding of AISI304 Stainless Steel with a Nickel Base Interlayer	
R. Jamshidi Lamjiri and A. Ekrami	48
Moisture Measuring Device Based on Non-Destructive Method of Gamma Ray's Attenuation	
A.S. Guimarães, J.M.P.Q. Delgado, V.P. de Freitas and A.C. Azevedo	55
Manufacturing Fiber-Reinforced Polymer Composite Using RTM Process: An Analytical Approach	
M.J. do Nascimento Santos and A.G. Barbosa de Lima	60
The Effect of the Drying Temperature on the Moisture Removal and Mechanical Properties of Sisal Fibers	
D. Gomes dos Santos, A.G. Barbosa de Lima and P. de Sousa Costa	66
Drying of Industrial Hollow Ceramic Brick: Analysis of the Moisture Content and Temperature Parameters	
M.V. Araújo, R.S. Santos, R.M. da Silva and A.G. Barbosa de Lima	72
Transient Heat Transfer in a Packed-Bed Elliptic Cylindrical Reactor: A Finite-Volume Approach	
R.M. da Silva, A.G. Barbosa de Lima, L.G. de Oliveira, M.V. Araújo and R.S. Santos	79
Synthesis and Characterization of Y₂Ti₂O₇ Photocatalytic Powders by Thermal Assist Process	
W.J. Lee and D.S. Bae	86
Synthesis and Characterization of CeO₂ Powders by Thermal Assist Process	
J.Y. Ock, J.H. Son and D.S. Bae	92
Motion Equations of Helium Atom through Ordered and Disordered Quartz Structure	
E. Kalashnikov, I. Tolstikhin and N. Krylova	98
Heat Exchange and Unsaturated-Saturated Flow in Porous Media	
J. Kačur, P. Mihala and M. Tóth	107
Interface Reaction between Tool Steel and Molten Al Alloy Containing High Mg Content	
Y.O. Yoon, N.S. Kim, B.H. Kim and S.K. Kim	115
Oxide Scale Behavior and its Effect on Oxidation Resistance in Al Alloys Containing Alkaline Earth Metal Elements	
S.H. Ha, Y.O. Yoon, N.S. Kim, S.H. Lim and S.K. Kim	120
Prediction of Mechanical Properties of Coiled Carbon Nanotubes by Molecular Structural Mechanics Based Finite Element Modelling	
H. Azzaz, D. Dahmoun, O. Chaterbache and M. Azzaz	124
Peculiarity of Grain Boundary Diffusion of Fe and Co in Cu	
A. Khairullin, V. Nikulkina, S. Zhevnenko and A. Rodin	135
The Influence of Temperature and Alloy Composition on Austenitic Stainless Steel Oxidation Resistance	
J. Graham, S. Malinov, R. Douglas and R.M. Stalker	141

Carbon Dioxide Hydrogenation to Methanol over Cu/ZnO-SBA-15 Catalyst: Effect of Metal Loading	
S.F.H. Tasfy, N.A. Mohd Zabidi, M.S. Shaharun, D. Subbarao and A. Elbagir	151
Phase Transformations and Recrystallization in Cold-Rolled Al-Mg-Sc-Zr Alloy Prepared by Powder Metallurgy	
M. Vlach, B. Smola, I. Stulikova, V. Kodetova, H. Kudrnová, J. Málek and V. Očenášek	161
Annealing Effects in Conventionally Cast and Homogenized Al-Zn-Mg(-Sc-Zr) Alloy	
M. Vlach, V. Kodetova, B. Smola, H. Kudrnová and T. Kekule	167
Grain Boundary Wetting in the Nd-Fe-B-Based Alloy	
A. Mazilkin, B. Straumal, S. Protasova and B. Baretzky	173
Change in Oxidizing and Reduction Roasting of Complex Iron-Titanium Ores	
A.N. Dmitriev, R.V. Petukhov, G.Y. Vitkina, A.V. Dolmatov and L.A. Ovchinnikova	181
The Association of Various Approaches to the Monitoring of Lining Condition in the Blast Furnace Hearth	
M.O. Zolotikh, A.N. Dmitriev and G.Y. Vitkina	186
Brine Divalent Ions Impacts on Wettability Alteration of Carbonate Rock Sample at Presence of DTAB	
S.N. Hosseini, M. Sabet, H. Soleimani and H.A. Eshkaftaki	191
Evaluation of 4330M Steel for Fasteners Applications	
A. Al Sumait, C. Delgado, F. Aldhabib, X. Sun, F. Alzubi, K. Tovalin, A. Cheng, R.M. Campo, Y.J. Li, B. Ramsey, L. Zeng and O.S. Es-Said	198
Applying Isothermal Injection Moulding Process in the Manufacturing of Polymer Composite Reinforced with NiTi Shape Memory Alloy	
C.A. Araújo Mota, C.J. Araújo, A.G. Barbosa de Lima, T.H. Freire de Andrade and D. Silveira Lira	212
Technical and Economic Viability for the Briquettes Manufacture	
B.P. da Silva, F. Saccol, N.R. Caetano, C. Pedrazzi and N.R. Caetano	218
Investigation of the Bubble Effect in Lightweight PMMA Polymer	
T. Bel, H. Cakar, N. Yahya, C. Arslan and N. Baydogan	227
The Effect of Partitioning on the Clustering Index of Randomly-Oriented Fiber Composites: A Parametric Study	
Z. Javanbakht, W. Hall and A. Öchsner	232