

Table of Contents

Preface

Various Flow Regimes and Permeabilities for Packed-Spheres Porous Media Ö. Bağcı, N. Dukhan and M. Özdemir	1
Heat and Mass Transfer and Energy Aspects in Combined Infrared-Convective Drying of Bee-Pollen R.J. Brandão, L.D.M. Santos, L.G. Marques and M.M. Prado	9
Physical and Chemical Characterization of Raw and Mechanochemically Treated Humine and Humic Acid from Brown Coals S. Karabaev, A. Kharchenko, I. Lokshina, I. Gainullina, A. Dzhunushalieva, S. Lugovskoy and A. Pendin	18
Comparison of Electrochemical and Chemical Corrosion Behavior of MRI 230D Magnesium Alloy with and without Plasma Electrolytic Oxidation Treatment B. Kazanski, A. Lugovskoy, O. Gaon and M. Zinigrad	27
Adsorption of Nitrogen Contaminants in the Light Gas Oil (LGO) and Light Cycle Oil (LCO) to Produce Diesel with Low Sulfur M.A.G. Figueiredo, W.C. Souza, H. Corrêa, L.B. Ventura, H.L. Corrêa, S.S.X. Chiaro and R.J.F. Souza	35
Microgeometry Modelling of Magnesium Alloy Polished Surfaces by Means of Cone-Based Manifolds A. Golabczak, A. Konstantynowicz and M. Golabczak	44
Observation of Phase Transformation in Shape Memory Alloy NiTi Wire during <i>In Vitro</i> Simulation of Orthodontic Treatment R. Rudolf and J. Ferčec	61
The Interpretation of Marker Experiment Conducted during Formation of Higher Oxide on the Surface of Lower Oxide Z. Grzesik, G. Smola and S. Mrowec	71
Gas- and Shrinkage Porosities in Al-Si High-Pressure Die-Castings - Virtualization and Experimental Validation Z. Ignaszak and J. Hajkowski	80
Multi-Scale Modeling of Internal Mass Diffusion Limitations in CO Oxidation Catalysts J.E.P. Navalho, J.M.C. Pereira and J.C.F. Pereira	92
H₂-Assisted Chemical Reaction for Green-Kerosene Production P. Dujjanutat, A. Neramittagapong and P. Kaewkannetra	104
Morphological Evolution in Heteroepitaxial Thin Film Structures at the Nanoscale M.A. Grekov and S.A. Kostyrko	112
Non-Destructive Evaluation Methods of Materials and Structures I. Chilibon	122
Effects of Mechanical Alloying on the Structure and Properties of Iron Powders F. Lemdani, M. Azzaz, K. Taibi and A. Lounis	132
Morphology and Structure of Nb₃Sn Diffusion Layers in Superconductors with Tubular Nb Filaments E.N. Popova, I.L. Deryagina, E.I. Patrakov and E.G. Valova-Zaharevskaya	139
Emission Nuclear Gamma-Resonance Spectroscopy of Grain Boundaries in Coarse-Grained and Ultrafine-Grained Polycrystalline Mo V.V. Popov, A.V. Sergeev and A.V. Stolbovsky	147
Effect of Ultrasonic Nanocrystalline Surface Modification on Hardness and Microstructural Evolution of Cu-Sn Alloy K.J. Li, Y.S. He, I.S. Cho and K.S. Shin	157
Diffusion of Oxygen in some Binary Ti-Based Alloys Used as Biomaterials C.R. Grandini	165
Interdiffusion and Reaction between Pure Magnesium and Aluminum Alloy 6061 C.C. Kammerer, M. Fu, L. Zhou, D.D. Keiser and Y.H. Sohn	174
Prediction of Diffusion Coefficients in Liquid and Solids W.Y. Wang, B.C. Zhou, J.J. Han, H.Z. Fang, S.L. Shang, Y. Wang, X.D. Hui and Z.K. Liu	182

