

Table of Contents

Preface

Self- and Solute Diffusion, Interdiffusion and Thermal Vacancies in the System Iron-Aluminium

H. Mehrer, M. Luckabauer and W. Sprengel 1

Effect of Austenitising Temperature on Microstructural Changes in High-Speed Steel of M2 Type Inoculated with Addition of WC Powder

A.Š. Chaus, M. Beznák, J. Porubský and J. Sojka 27

Li Diffusion in (110) Oriented LiNbO₃ Single Crystals

J. Rahn, L. Dörrer, B. Ruprecht, P. Heitjans and H. Schmidt 33

Anisotropy of Hydrogen Diffusivity in ZnO

J. Čížek, F. Lukáč, M. Vlček, M. Vlach, I. Procházka, F. Traeger, D. Rogalla, H.W. Becker, W. Anwand, G. Brauer, S. Wagner, H. Uchida, A. Pundt and C. Bähz 39

Diffusion Processes in Early Stages of Precipitation in Mg-Gd and Mg-Tb Alloys

O. Melikhova, J. Čížek, P. Hruška, M. Vlach, B. Smola, I. Stulíková and I. Procházka 51

Design and Development of Nb-W-Mo Alloy Membrane for Hydrogen Separation and Purification

H. Yukawa, T. Nambu and Y. Matsumoto 61

Calculating of Diffusion Profiles in Ternary Systems Using Effective Interdiffusion Coefficients of Components

Ü. Ugaste and J. Priimets 73

Bi-Velocity Phase Field Method

B. Wierzba, M. Danielewski, A. Nowotnik and J. Sieniawski 83

The Influence of Yttrium on Kinetics and Mechanism of Chromia Scale Growth on Fe-Cr-Ni Base Steels

Z. Grzesik, K. Adamaszek, Z. Jurasz and S. Mrowec 91

Magnetically Controlled Grain Boundary Migration and Microstructure Evolution in Zn

D.A. Molodov, C. Günster and G. Gottstein 101

Microstructure and Mechanical Properties of Directionally Solidified Unmodified and Ni-Modified Sn-0.7wt%Cu Lead-Free Solder Alloy

N. Cheung, A. Garcia and J.E. Spinelli 107

Diffusion of Particles Adsorbed on a Patchwise Surface

A. Tarasenko 117

Membrane Separation of CO₂ from Natural Gas: A State-of-the-Art Review on Material Development

A.A. Latif, J.K. Adewole, S.B. Ismail, L.C. Peng and A.S. Sultan 135

Effect of Grain Size on the High Temperature Oxidation Behaviour of Austenitic Stainless Steels

H. Fujikawa and Y. Iijima 149

Mössbauer Spectroscopy of Internal Interfaces in Metals

V.V. Popov 157

Pseudopartial Grain Boundary Wetting: Key to the Thin Intergranular Layers

B.B. Straumal, A. Rodin, A.E. Shotanov, A.B. Straumal, O.A. Kogtenkova and B. Baretzky 175

Isotope Exchange between ¹⁸O₂ Gas and Mechanoactivated Oxide NdMnO_{3+δ}

O.M. Fedorova, A.Y. Fishman, T.E. Kurennykh, V.B. Vykhodets and V.B. Vykhodets 193

Fuel-Matrix Chemical Interaction between U-7wt.%Mo Alloy and Mg

K. Huang, H. Heinrich, D.D. Keiser and Y.H. Sohn 199