

Table of Contents

Atomic-Scale Modelling of Intergranular Segregation: The Case of Alloys with Strong Size-Effect J. Creuze	3
Atomic Defects and Diffusion in Intermetallic Compounds: The Impact of the ab initio Electron Theory M. Fähnle	37
Interdiffusion Issues in Pt-Modified NiAl Coatings S. Datta, R. Filipek and M. Danielewski	47
Long-Term Life of Ni/Cu Bellows: Effect of Diffusion on Thermomechanical Properties O. Arnould and F. Hild	61
On-the-Fly Evaluation of Diffusional Parameters during a Monte Carlo Simulation of Diffusion in Alloys: a Challenge J.L. Bocquet	81
Monte Carlo Study of the Evolution of the Phase Morphology in Coherent Metallic Multilayers with Immiscible Components A. Ullrich, M. Bobeth and W. Pompe	113
Determination of Atom-Vacancy Exchange-Frequency Ratios from Experimental Intrinsic Diffusivities in Disordered Binary and Ternary Alloys I.V. Belova and G.E. Murch	125
Investigation of Diffusion Kinetics by Auger Electron Spectroscopy Z. Erdélyi, D.L. Beke, J. Bernardini, C. Girardeaux and A. Rolland	131
Limits of Ion-Beam Depth-Profiling as Used in Diffusion Studies of Oxidation-Sensitive Materials H. Ehmler, A. Rehmert, K. Rätzke and F. Faupel	147
Effect of Treatment in Hydrogen on Physiomechanical Properties of Fe-Ni Alloys (<30at%Ni) V.V. Fedorov, E.V. Dyomina, P.V. Basistyi, U.G. Bachinskyi, M.D. Prusakova and N.A. Vinogradova	153
Energy of Vacancy Formation and Migration of Two $\Sigma 5$ Tilt Grain Boundaries in Ni₃Al Intermetallic: a Monte Carlo Simulation Study J. Čermák	161
Ni Tracer Self-Diffusion, Interdiffusion and Diffusion Mechanisms in NiAl S.V. Divinski and C. Herzig	177
Dendrite Growth Characteristics of the γ'-Precipitates in a Single-Crystal Ni-Based Superalloy J.H. Zhang, X. Wu, Y.B. Xu and Z.Q. Hu	193
Microstructure Control Factors of H Diffusion through Pd and Pd₇₇Ag₂₃ Membranes Y. Cao, J.A. Szpunar and W. Shmayda	211
H-Diffusivity and Solubility in Crystalline Pd-Ni Alloys D.S. dos Santos	219
Activation Energy of Diffusion of H in Pd₈₁Pt₁₉ Membrane during Absorption and Desorption of H D. Dudek	225
Theoretical and Experimental Studies of Zr Oxidation: Stress and Anisotropy Effects J. Favergeon, T. Montesin, C. Valot and G. Bertrand	231
Low-Temperature Acoustic and Thermal Properties of Plastically Deformed, High-Purity Crystalline Specimens of Al, Nb and Ta W. Wasserbäch	245
Thermally Activated Dislocation Motion Studied by Internal Friction Z. Trojanová, P. Lukáč and W. Riehemann	249
Mechanical Spectroscopy in Martensitic and Cold-Worked Carbon Steels I. Tkalcec and D. Mari	253
Internal Friction Study of Intermetallic Compound Fe₃Al Single Crystals A. Nagy, U. Harms and H. Neuhäuser	257

Low-Frequency Damping Measured under Isothermal Conditions: Martensite Variant Interface Motion in Shape Memory Alloys V. Pelosin and A. Rivière	261
Mechanical Spectroscopy of Bulk Metallic Glasses J.M. Pelletier and B. Van de Moortèle	265
Magnetomechanical Damping in Magnetized Nickel A. Ercuța and I. Mihalca	269
Internal Friction in a ZC63 Matrix Composite Z. Trojanová and P. Lukáč	273
The Effect of Particle Reinforcement upon the Precipitation of Secondary Phases in Composites with Aluminum Matrix M. Nicoară and A. Răduță	277
Anelastic Properties of Magnesium-Matrix Composites as a Function of Temperature O. Couteau and R. Schaller	281
Internal Friction of Copper Thin Layers on Silicon Substrates J. von der Hagen, M. Weller and E. Arzt	285
Mechanical Spectroscopy of Icosahedral Al-Cu-Fe Quasicrystals Metal-Based Composites J. Fikar, R. Schaller, N. Guilbaud and N.L. Baluc	289
Abstracts	1