

Table of Contents

Preface

Why Should we Be Interested in the Atomic Structure of Interfaces?

R.W. Balluffi and A.P. Sutton 1

Orientation Imaging Microscopy: Applications to the Characterization of the Grain-Boundary Network

B.L. Adams 13

Quantitative High-Resolution Electron Microscopy of Interfaces

F. Ernst, D. Hofmann, K. Nadarzinski, C. Schmidt, S. Stemmer and S.K. Streiffer 23

Calculating and Understanding the Structure of Interfaces

M.W. Finnis 35

Electrical Resistivity and Grain Boundaries in Metals

I. Nakamichi 47

Lines of Grain Boundary Phase Transitions in Bulk Phase Diagrams

B.B. Straumal and W. Gust 59

Chemical Aspects of Metal-Ceramic Interactions

A.A. Kodentsov, M.R. Rijnders and F.J.J. van Loo 69

Atomic-Scale Investigation of Grain Boundary Segregation in Astroloy with a Three Dimensional Atom-Probe

D. Blavette, L. Letellier, P. Duval and M. Guttmann 79

Influence of Hydrogen on the Stacking-Fault Energy of an Austenitic Stainless Steel

P.J. Ferreira, I.M. Robertson and H.K. Birnbaum 93

Structure and Composition of a Special Twin Boundary in α -Al₂O₃

T. Höche and M. Rühle 97

Importance of Non-Central Interatomic Forces in Atomistic Studies of Grain Boundaries

V. Vitek and A.G. Marinopoulos 101

A Direct Method for Density Matrix Calculation: Application to Si Grain Boundaries in the Tight-Binding Scheme

A. Hairie, F. Hairie, B. Lebouvier and E. Paumier 105

Interface Diffusion under an Electric Field. Interface Evolution

L. Klinger, L. Levin and D.J. Srolovitz 109

Experimental and Theoretical Investigation of Dislocations in {10̄12} Twins in Zinc

T. Braisaz, D.J. Bacon, G. Nouet, R.C. Pond, P. Ruterana and A. Serra 113

TEM Characterization of Invariant Line Interfaces and Structural Ledges in a Mo-Si Alloy

S.Q. Xiao, U. Dahmen, S.A. Maloy and A.H. Heuer 117

Orientation Relationship in Large Mismatched Bicrystals and Coincidence of Reciprocal Lattice Points (CRLP)

Y. Ikuhara and P. Pirouz 121

Grain Boundaries of Finite Extent

A.H. King, L. Balasubramanian and R.T. Catalano 125

Pressure-Thermodynamic Study of Bi Segregation at ZnO Grain Boundaries

J.R. Lee and Y.M. Chiang 129

Investigation of Grain Boundary Migration in Al-Bicrystals by Continuous Tracking with X-Rays

D.A. Molodov, U. Czubayko, G. Gottstein and L.S. Shvindlerman 133

Control of Nanoscale Interphase Boundaries by an Electron Beam

B.S. Xu and S.I. Tanaka 137

Theoretical Considerations about Grain Boundary Migration in FCC Metals

W. Wunderlich 141

Zirconia-Titanium Joint Interfaces

J.V. Emiliano, R.N. Correia, P. Moretto and S.D. Peteves 145

Kelvin Microprobe Investigation of the Surface Potential across Charged Grain Boundaries in Silicon

A. Broniatowski, W. Nabhan, B. Equer and G. de Rosny 149

Grain Boundary Fracture and Plasticity in $\Sigma=25$ Bicrystals of Silicon	153
A. Jacques and S.G. Roberts	
Grain Boundary Thermodynamics, Structure and Mechanical Properties	157
R.G. Faulkner and L.S. Shvindlerman	
Structure of Carbon 60 Grain Boundaries and Carbon Nanotube Buckled Interface and the Composite Plasticity	161
Y. Ishida, T. Kuzumaki, T. Hayashi and K. Ito	
Effects of Element Segregation on Nanometer Grain Boundary Sliding in Copper	165
R. Monzen, M. Hida, K. Kitagawa and M. Kato	
Diffusion Induced Grain Boundary Migration in Cr-Doped Alumina during Internal Reduction	169
M. Backhaus-Ricoult, A. Peyrot-Chabrol and S. Hagège	
Molecular Dynamics Simulation of Self-Driven Solid State Amorphization at Ni/Zr Interfaces	173
M.G. Fernandes and V. Pontikis	
Structural Characterization of SiC Platelet-Reinforced Al_2O_3 Matrix Composites before and after Creep Deformation	177
X.G. Ning, R. Ham-Su and D.S. Wilkinson	
Electron Energy-Loss Spectroscopy at Cu/Al_2O_3 and Ti/Al_2O_3 Interfaces	181
C. Scheu, G. Dehm, H. Müllejans and M. Rühle	
The Interface Structure during Solid State Reactions and Its Influence on Reaction Kinetics and Reaction Mechanism	185
D. Hesse and P. Werner	
Computer Simulation and Particular Properties of $\Sigma=3^n$ Boundaries and Their Groups	189
A.V. Andreeva and A.A. Firsova	
Carbon Precipitation in a $\Sigma=5$ Tilt Boundary in Molybdenum	193
M. Bacia, J. Pénisson and M. Biscondi	
Structural Evolution with Thickness of Largely Strained Multilayers: Au/Ni System	197
P. Bayle-Guillemaud and J. Thibault	
Misfit Dislocations Associated with Ultrathin Twins along a $\text{Ni}_3\text{Al} / \text{Ni}_3\text{Nb}$ Interface	201
R. Bonnet, M. Loubradou, U. Dahmen and S. Hinderberger	
Structure and Chemistry of Grain Boundaries in Yttria Doped Aluminas	205
D. Bouchet, F. Dupau and S. Lartigue-Korinek	
The 112 Lateral Twin Boundary in FCC Materials	209
C.B. Carter, D.L. Medlin, J.E. Angelo and M.J. Mills	
HRTEM and LACBED Analysis of Strain Fields Induced by the Precipitation of Chromium in Alumina during Internal Reduction	213
C. Deininger, A. Peyrot-Chabrol, M. Backhaus-Ricoult and S. Hagège	
Growth, Structure and Interfaces of Cu and Cu/Ti Thin Films on (0001) α-Al_2O_3	217
G. Dehm, C. Scheu, R. Raj and M. Rühle	
A Candidate for Grain Boundary Pipe Diffusion and Intrinsic Electrical Activity in Silicon	221
O.B.M. Hardouin Duparc and M. Torrent	
Atomistic Simulation of Grain Boundaries in Alumina	225
M. Exner and M.W. Finnis	
Grain Boundary Structure in Ni_3Al	229
D. Farkas	
Epitaxy of Deposited α-Fe Films on High-Index Cu Substrate Planes	233
T. Fujii, N. Sarlis, S. Inoue and M. Kato	
Interfaces in SiC/C CVD Multilayers	237
F. Gourbilleau, G. Nouet and M. Ducarroit	
Atomic Structure of the Interface between Epitaxial Niobium Films and α-Al_2O_3 Substrates	241
G. Gutekunst, J. Mayer and M. Rühle	
Determination of the Atomistic Structure of the $\Sigma 3$ (111) Twin Boundary in NiAl	245
M. Hagen and M.W. Finnis	
Direct Free Energy Estimates along a Real Path by Means of Constrained Molecular Dynamics	249
M. Hou, A. Hairie, B. Lebouvier, E. Paumier, N. Ralantoson, O.B.M. Hardouin Duparc and A.P. Sutton	

Faceted Voids and Grain Orientation at Solid State Diffusion Bonded Interfaces between Cu and Single Crystal Cubic ZrO₂ H. Ishii, J.D. Mun, A.J. Wilkinson, B. Derby and A.P. Sutton	253
Analysis of Symmetric Triple Junctions A.H. King and V. Singh	257
Tight-Binding Calculation of Grain Boundaries in Diamond M. Kohyama, H. Ichinose, Y. Ishida and M. Nakanose	261
Theoretical Study of Grain Boundaries in Silicon: Features of Atomic and Electronic Structures M. Kohyama	265
Ab Initio Calculations for SiC-Al Interfaces M. Kohyama	269
Structure Analysis and Interfacial Dislocations of (01⁻12) Twins in Zinc S. Lay and G. Nouet	273
Comparison of Different Empirical Potentials for Energy Calculation of Grain Boundaries in Silicon at OK B. Lebouvier, A. Hairie, F. Hairie, G. Nouet and E. Paumier	277
Experimental Study by Transmission Electron Microscopy of Antiphase Boundaries in Fe-Al27% Close to the DO₃→B2 Order Phase Transition D. Le Floc'h, C. Barreteau and A. Loiseau	281
Planar Defects in Epitaxial GaAs Meeting in the Interfacial Region GaAs / (001)Si M. Loubradou, R. Bonnet, A. Vilà and P. Ruterana	285
Identification of the Reference Structure for a High Angle Grain Boundary in Titanium I. MacLaren and M. Aindow	289
XPS Study of Ni Layers Deposited on 6H-SiC T. Marinova, V. Krastev, C. Hallin, R. Yakimova and E. Janzén	293
Critical Wetting of Interfaces in Ordered CuPd(17%) Very Close to T_c P.H.H. Rongen, F.W. Schapink and F.D. Tichelaar	297
Branching Rule of Coincidence Boundaries in Cubic Polycrystals K. Miyazawa, K. Ito and Y. Ishida	301
Atomistic Simulation of Grain Boundary Structure in a Series of B2 Intermetallics B. Mutasa and D. Farkas	305
Quantitative HRTEM of the $\Sigma 3$ (111) Grain Boundary in NiAl K. Nadarzinski and F. Ernst	309
High Resolution Transmission Electron Microscope Investigations of Phases, Domains and Interfaces in Ti_{50.5}Al_{46.5}Cr₃/TiB₂ Composites X.G. Ning, D.S. Wilkinson, J.F. Mao, J.H. Li, H.Q. Ye, Z.J. Pu and D.X. Zou	313
Study of the Structure of Ferroelectric Domain Walls in Barium Titanate Ceramics L. Normand, R. Kilaas, Y. Montardi and A. Thorel	317
Strengthening Effect due to Quasiperiodic Grain Boundaries in Crystals M.Y. Gutkin and I.A. Ovidko	321
Coincidence-Site Lattice Boundaries in a Zr-2.5 Nb Alloy A. Perovic, G.C. Weatherly, G.R. Purdy, W.Z. Zhang and V. Perovic	325
Twins of Quasicrystals and of Rational Approximants O. Radulescu and D.H. Warrington	329
Limitations of the Structural Unit Model J.D. Rittner and D.N. Seidman	333
Prediction of the BCC Structure in a Cu $\Sigma 3$-84° <211> Tilt Grain Boundary and its Confirmation by HRTEM C. Schmidt, M.W. Finnis, V. Vitek and F. Ernst	337
Diffraction Contrast Measurements of Body Translation Vectors in Pseudo-Symmetric Crystals D.J. Seale and S.S. Sheinin	341
Grain Boundaries in Bamboo Structures V.G. Sursaeva, T.V. Tatjiz, L.S. Shvindlerman and R.G. Faulkner	345
Progress on Tight-Binding Calculations of Silicon Grain Boundaries Containing Nickel Impurities M. Torrent and O.B.M. Hardouin Duparc	349

Si₃N₄ Tilt Grain Boundary	353
K.M. Knowles and S. Turan	
Interphase Boundaries between SiC and Si₃N₄	357
S. Turan and K.M. Knowles	
HRTEM Observations of a Cu-MgO Interface	361
W.P. Vellinga and J.T.M. de Hosson	
Investigation of Nanocrystalline Fe by Small-Angle Neutron Scattering	365
J.F. Löffler, W. Wagner and H. Van Swygenhoven	
Orientation Relationships and Transformation in Iron Oxides	369
Y. Watanabe and K. Ishii	
Investigation of Triple Junction Defect Structure	373
S.G. Zaichenko, A.V. Shalimova and A. Titov	
Validity of the Coincidence Site Lattice Model Applied to Grain Boundary in a Non-Cubic Material: An Experimental Demonstration	377
Y. Zhu	
Structure of Twin Boundaries in YBa₂Cu₃O_{7-δ} Superconductors	381
Y. Zhu	
About Oxygen and Carbon Segregation in a Molybdenum Grain Boundary: Static Simulation Using N-Body Potentials	385
M. Bacia and M. Biscondi	
A New Method for Characterizing Equilibrium Pore Shapes in Ceramics	389
M. Kitayama and A.M. Glaeser	
Grain Boundary Segregation in Pure and Boron Doped Cobalt Monosilicide (CoSi)	393
A. Larere, C. Haut, T.T. Nguyen, S. Cadot and P. Gas	
Surface Segregations in Light Random Alloys	397
A.Y. Lozovoi, P.A. Korzhavyi and Y.K. Vekilov	
Interfacial Segregation of Antimony in Steel	401
R. Mast, H.J. Grabke, M. Jenko and M. Lucas	
Interfaces between Al and α-Al₂O₃ in Melt-Infiltrated Alumina	405
H. Müllejans, W.D. Kaplan and M. Rühle	
Computer Simulation Study of the Precipitate-Matrix Interface in an Fe-Cu System	409
Y.N. Osetsky and A. Serra	
Variation of Energies of Aluminum [001] Boundaries with Misorientation and Inclination	413
A. Otsuki	
Symmetry and Phase Transformations of Grain Boundary Structures	417
V. Paidar, P. Lejček and V. Vitek	
Grain Boundary Structure and Composition in Strontium Titanate	421
X. Pan, H. Gu, S. Stemmer and M. Rühle	
Reactivity and Wettability of SiC by Ni and Ni-Si Alloys	425
C. Rado, S. Kalogeropoulou and N. Eustathopoulos	
Atomic Scale Studies of Silver Segregation at {222} MgO/Cu Heterophase Interfaces	429
D.A. Shashkov and D.N. Seidman	
Work of Adhesion and Orientation Relationships at the Solid Cu/Al₂O₃ Interface	433
A. Soper, B. Gilles and N. Eustathopoulos	
Grain Boundary Wetting Phase Transitions on the Al-Sn and Al-Sn-Pb Systems	437
B.B. Straumal, D.A. Molodov and W. Gust	
The Study of Phosphorus Segregation on the Grain Boundaries of Steels by X-Ray Electron Spectroscopy	441
N.S. Terebova and I.N. Shabanova	
Influence of Grain Boundary Structure on Bubble Formation Behaviour in Helium Implanted Copper	445
P.A. Thorsen, J.B. Bilde-Sørensen and B.N. Singh	
A Solute-Segregation Induced Structural Phase Transition at a Twist Boundary	449
D. Udler and D.N. Seidman	
Grain Boundary Segregation, Carbide Precipitation and Intergranular Embrittlement in Nickel-Base Alloys Type Inconel 600 and Inconel 690	453
G.C. Allen, P.E.J. Flewitt, P. McIntyre, C. Preece, R.K. Wild and C.M. Younes	

Stress Distribution and Mass Transport along Grain Boundaries during Electromigration	457
X. Chu, M. Scherge, C.L. Bauer and W.W. Mullins	
Two Types of Grain Boundaries in Deformed Materials	461
A. Belyakov and R. Kaibyshev	
Orientation Dependence of ^{195}Au and ^{64}Cu Diffusion along Symmetric [001] Tilt Grain Boundaries in Cu	465
E. Budke, C. Herzig, S.I. Prokofjev and L.S. Shvindlerman	
On Mean Square Penetration Depth in Grain Boundary Diffusion	469
Y.T. Chou and C.T. Liu	
Modeling of Interphase Boundary Movement in a Mixture of Amorphous and Crystalline Structures	473
S.V. Demishev and T.V. Ischenko	
Grain Boundary Diffusion of Copper in Aluminium Bi-Crystal after Laser Fusion	477
S. Gut, J. Przybylowicz, K. Przybyłowicz and I. Suliga	
Simultaneous Determination of Grain Boundary Diffusion Coefficients and Segregation Factors of Solute Atoms in Cu and Ag Polycrystals from Diffusion Measurements in Different Kinetic Regimes	481
T. Surholt and C. Herzig	
The Formation of Grain Boundaries during Plastic Deformation of LiF Single Crystals	485
R. Kaibyshev and O. Sitzdikov	
Application of HREM in Situ Heating Experiments to the Study of Dynamical Behaviour of Grain Boundaries at Very High Temperatures	489
T. Kamino, T. Yaguchi, M. Ukiana, Y. Yasutomi and H. Saka	
Bulk Diffusion-Induced Grain Boundary Migration due to Elastic Anisotropy	493
A. Katsman, L. Klinger, L. Levin, E. Rabkin and W. Gust	
Diffusion Induced Grain Boundary Migration in Hexagonal Materials	497
A.H. King and L. Liang	
A Model of Accelerated Diffusion along Triple Junction of Grain Boundaries	501
L. Klinger, L. Levin and A. Petelin	
The Independent Determination of the Interface Core Width and the Diffusion Coefficients in the Ion Hyperconductivity Zone	505
M.I. Kurkin, S.M. Klotsman, V.N. Kaigorodov and V.V. Daykin	
Computational Methods for Propagating Phase Boundaries	509
P.G. LeFloch	
Diffusion Coarsening of Lamellar Structure in Two-Phase Intermetallic Alloys	513
A.Y. Lozovoi and I.M. Razumovskii	
Precipitate Free Zones at Grain Boundaries in the Nickel-Base Superalloy Nimonic PE16	517
R. Maldonado and E. Nembach	
The Influence of Grain Boundaries on the Stored Energy of Cold-Work and Recrystallization Kinetics	521
D. Mandal and I. Baker	
High Temperature Diffusion in a NiO Tilt Grain Boundary: A Molecular Dynamics Study	525
M. Meyer, T.E. Karakasidis and C. Waldburger	
Monte Carlo Simulations of Particle/Boundary Interactions	529
M.A. Miodownik and J.W. Martin	
Diffusion and Correlation Effects in Periodic Grain Boundaries	533
Y.M. Mishin	
The Mechanism of Grain Boundary Migration in Aluminum Bicrystals	537
W. Łojkowski, D.A. Molodov, G. Gottstein and L.S. Shvindlerman	
Strain-Induced Processes in Grain Boundaries	541
V.N. Perevezentsev	
Investigation of Mechanisms of Grain Boundary Diffusion	545
S. Gut, K. Przybyłowicz and I. Suliga	
Crystallographic Analysis of Grain Boundary Vibration Induced by Electron Beam Irradiation in CuGa₂	549
K. Sasaki and H. Saka	
On the Generation of Twinning Dislocations in HCP Twin Boundaries	553
A. Serra and D.J. Bacon	

The Onset of Abnormal Grain Growth in Al-Ga Polycrystals B.B. Straumal, V.G. Sursaeva, S. Risser, B. Chenal and W. Gust	557
Theoretical and Experimental Studies of Irradiation-Induced Grain Boundary Migration Depending on Orientation H. Takahashi, N. Sakaguchi, N. Hashimoto and S. Watanabe	561
Grain Boundary Grooving in Polycrystalline Oxides and Surface Diffusion Coefficient in Polycrystalline Alumina A. Tsoga, D. Sotiropoulou and P. Nikolopoulos	565
Grain Boundary Motion in Idealised Models D. Weaire and S. McMurry	569
Low Temperature Brittle Fracture in C-Mn Weld Metal F.H. Baumann, R. Moskovic, R.K. Wild and P.E.J. Flewitt	573
Effects of Intragranular Deformation on Grain Boundary Sliding in Zinc Bicrystals A.D. Sheikh-Ali and R. Valiev	577
Dislocation/Grain Boundary Interactions in Ice Crystals under Creep Conditions I. Baker, F. Liu, K. Jia, X. Hu and M. Dudley	581
An Example of Dynamic Embrittlement: Oxygen-Induced Cracking of a Cu-Be Alloy at 200°C R. Muthiah, A. Guha and C.J. McMahon	585
Study of Doped-Intrinsic Interfaces in Amorphous Semiconductors Using Doping Multilayers J.P. Conde, M. Silva and V. Chu	589
Modelling Intergranular and Cleavage Fracture in Polycrystalline Materials A. Crocker and G. Smith	593
The Influence of Interfacial Layers on the Ultimate Shear Strength of Copper/Sapphire Interfaces G. Dehm, R. Raj and M. Rühle	597
Microstructure Evolution, Interface Distributions and Mechanical Behaviour of Austenitic Stainless Steels V.Y. Gertsman, O.V. Mishin and R. Valiev	601
Elastic Behaviour of Screw Dislocations near Triple Junctions of Interphase Boundaries M.Y. Gutkin, A.E. Romanov and E.C. Aifantis	605
Fatigue Crack Propagation and Grain Boundary S. Hashimoto, A. Vinogradov and S. Miura	609
Interfaces and Ductility-Toughness in TiAl Intermetallic Compounds L.L. He and H.Q. Ye	613
EBIC and DLTS of the Electrical Activity of Fe-Contaminated Silicon Bicrystals A. Ihlal, R. Rizk, P. Voivenel and G. Nouet	617
Gettering Efficiencies of $\Sigma=25$, $\Sigma=13$ and $\Sigma=9$ Silicon Bicrystals A. Ihlal, O.B.M. Hardouin Duparc and R. Rizk	621
Characteristic Features of Grain Structure and Electron Properties of Thin Bismuth Films A.I. Il'in, A.V. Andreeva and B.N. Tolkunov	625
Grain Boundary Premelting in Plastically Deformed Bicrystals and Polycrystals of Some FCC Metals F. Inoko, T. Yoshikawa and K. Kashihara	629
Segregation Effect on Grain Boundary Diffusion in Oxides C.J.A. Monty	633
Low Attenuation of the Supercurrent by High Angle Grain Boundaries in $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Ceramics J.Y. Laval, M. Drouet, W. Swiatnicki, E. Gradys, G. Schiffmacher, I. Monot and G. Desgardin	637
The Influence of Planar Compositional Modulation on the Anisotropic Behaviour of TlBiSe_2 E.K. Polychroniadis, A.N. Anagnostopoulos and C.B. Lioutas	641
The Effect of Phosphorous and Arsenic on the Fracture Behaviour of a 2,25% Cr - 1% Mo Steel G.W. Lorimer, R. Dicken, P. Peura, R. Pilkington, C.M. Younes, G.C. Allen and M.J. Holt	645
Correlation between Intermediate-Temperature Embrittlement and Grain-Boundary Energy H. Miura, N. Tada, T. Sakai and M. Kato	649

Embrittlement of Low-Alloyed Steels due to Impurity Segregation at Intergranular Boundaries	653
Y.A. Nikoalev and A.V. Nikoaleva	
Theoretical Study of Atomic and Electronic Structures of Grain Boundaries in Silicon	657
A.V. Nikoaleva and Y.A. Nikoalev	
Molecular Dynamics Simulation for Deformation of Nanocrystals	661
J. Tajima, K. Nishioka, N. Inai and T. Takai	
Effect of Twist Angle on Properties of Diffusion Bonded Joints Using Ni-Base Single Crystal Superalloy	665
O. Ohashi	
Influence of the Annealing Temperature on the Precipitation of Nickel in a $\Sigma=25$ Silicon Bicrystal	669
X. Portier, R. Rizk, G. Nouet and G. Allias	
Image Force on a Dislocation due to a γ/γ' Interface in a Ni-Based Superalloy	673
L. Priester, O. Khalfallah and A. Coujou	
Electric Activity of Dislocation Networks in Si and Ge	677
S.A. Shevchenko and A.I. Shalynin	
Synthesis and Thermoelectric Properties of $\text{Fe}_{1-x}\text{Ru}_x\text{Si}_2$	681
M. Shimada, P. Mo, Y. Odashima, S. Uchida and H. Takizawa	
The Influence of Dislocation Structure and Intergranular Boundaries on the Character of Fracture in the Low Carbon Steel St3	685
N.K. Tsenev, I.R. Kuzeev, A.V. Baryshev, A.M. Gallyamov and B.E. Selsky	
Structure and Properties of Grain Boundaries in Ultrafine-Grained Superplastic Materials	689
R. Valiev and O.V. Mishin	
Interface Boundaries Formed during Electrodeposition	693
A. Vikarchuk, A. Vinogradov and M. Nadtochy	
Annealing Effect of Cu on the Co Structure in Cu/Co/Cu Sandwiches	697
M. Benissa, P. Humbert, H. Lefakis, G. Ehret, V.S. Speriosu and B.A. Gurney	
Intergranular Segregation in Cu(Ag) and Ag(Cu) Systems: Analysis of the Driving Force Using a Tight-Binding Scheme	701
F. Berthier, B. Legrand, G. Tréglia and L. Priester	
Ceramic Thin-Film Reactions	705
J.R. Heffelfinger, P.G. Kotula and C. Barry Carter	
a-Si:H on Soda-Lime Glass Substrate: Effect of Film Porosity on the Penetration of Na^+ through the Interface	709
P. Danesh and B.G. Pantchev	
Amorphous SiO_2 Precipitates at Silicon Grain Boundaries	713
G. Duscher, H. Müllejans, J. Werner and M. Rühle	
Interface Structure of Co-ZrO₂ Produced by Reduction of CoO-ZrO₂ Eutectic	717
J. Echigoya, S. Hayashi and E. Aoyagi	
Grain Boundary Alumina Precipitation during Internal Oxidation of Cu-Al Water Atomized Powders	721
A.C. Ferro, M.P. Caldas and J.B. Correia	
Intergranular Oxidation and Pestling of Intermetallic Compounds	725
H.J. Grabke, M. Steinhorst, M.W. Brumm, B. Wagemann, V.K. Tolygo, I. Rommerskirchen and A. Katsman	
Structure and Chemistry of Intergranular Films in Ca-Doped Si_3N_4	729
H. Gu, X. Pan, I. Tanaka, R.M. Cannon, M.J. Hoffmann, H. Müllejans and M. Rühle	
Significance of Faceting on SiC Nanoparticles in Alumina	733
W.D. Kaplan, I. Levin and D.G. Brandon	
Grain Boundary Void Formation during Oxidation of Alloys and Intermetallics	737
A. Katsman, H.J. Grabke, L. Levin and T. Werber	
XPS Study of Laser Annealed Ion Implanted InP	741
V. Krastev, T. Marinova, M.G. Kalitzova, G. Vitali and C. Pizzuto	
On the Role of Grain Boundary Plane Orientation in Solute Segregation	745
P. Lejček and S. Hofmann	
Phase Boundaries among the Metastable Precursor Phases to $\alpha\text{-Al}_2\text{O}_3$	749
I. Levin, W.D. Kaplan, D.G. Brandon, H. Müllejans and M. Rühle	

Glass Crystallization and Interfaces	
S. Ramamurthy, M.P. Mallamaci, C.M. Zimmerman, K.B. Sartain and C. Barry Carter	753
Atomic Resolution Electron Microscopy Studies of Reaction Fronts in Spinel-Forming Solid State Reactions	
X. Pan, H. Sieber, S. Senz, D. Hesse and J. Heydenreich	757
Microstructure of Grain Boundaries and Phase Boundaries in Si₃N₄-SiC Nanocomposites	
X. Pan, M. Rühle and K. Niihara	761
Silicide Islands Formation during Interface Reactions of Thin Films of Metallic Glasses with Si Substrates	
N.V. Rozhanskii and V.O. Lifshits	765
Interaction of Lattice Dislocations with α/γ Interphase Boundaries	
W.A. Świątnicki and M.W. Grabski	769
Stability of Extrinsic Grain Boundary Dislocations in Nickel Bicrystals	
W.A. Świątnicki, L. Priester and M.W. Grabski	773
Interface Reaction and Bondability of Alumina to Titanium	
Y. Takahashi and H. Ishii	777
Intergranular Corrision of a Fe-Cr Alloy Surface Enriched in Mo or Ni by Electron Beam Alloying	
C. Vignaud, M. Keddam, F. Pillier, S. Tosto and F. Nenci	781
Size Effects and Boundary Phase Transitions during Consolidation of Nickel High Dispersion Powders	
I.P. Arsentieva and A.V. Andreeva	785
High Temperature Grain Boundary Internal Friction and Intergranular Precipitates in Ni-Cr Alloys	
B. Cao, R. Schaller, R. Schäublin, W. Benoit and F. Cosandey	789
Interphase Cementite and Mechanical Properties of the CO₂ Laser Transformation Hardened 55C1 Steel	
F.S.L. Cassino, G. Moulin and C. Dubouchet	793
Geometry and Energies of Grain Boundaries as Related to Critical Currents in Superconducting YBa₂Cu₃O_{7-x}	
S.W. Chan	797
Grain Boundary Electromigration beyond the Diffusivity: Whether Grain Boundary Segregation Can Affect the Driving Force	
E.E. Glickman and M. Molotskii	801
Elementary Excitations of Burger's Model for a Junction between Grains	
L.B. Hovakimian and S. Tanaka	805
Interaction between Oxidation and Deformation in the Case of Nickel in Creep at 550°C. Relation with Oxygen Diffusion.	
G. Moulin and P. Berger	809
High Resolution Thermal Diffusivity Measurements in Aluminium Nitride: Effect of Grain Boundaries and Intergranular Phases	
C. Périssonnier, L. Pottier, D. Fournier and A. Thorel	813
Grain Boundaries Influence on Strain Hardening of Superplastic Materials	
O.E. Pirozhnikova	817
Injection Level and Temperature Dependence of the Recombination Activity of Grain Boundaries in Germanium	
N. Tabet and C.J.A. Monty	821
Rotational Space and Coincidence Site Lattices for Icosahedral Symmetry	
D.H. Warrington and R. Lück	825
Basic Elements of Interfacial and Joint Defects Induced by Non-Elastic Strain of the Grains in a Polycrystal	
A.A. Zisman and V.V. Rybin	829
Molecular Dynamics Investigation of the $\Sigma 5$ Energy Cusp in [001] Twist Boundaries in Cu₃Au at T=0 K	
I.P. Antoniades, A.J. Patrinos and G.L. Bleris	833
Evolution of Intergranular Boundary Structure during Severe Plastic Deformation in Aluminium Alloys with Different Initial Grain Sizes	
N.K. Tsenev, I.R. Kuzeev and B.E. Selsky	837

