

Table of Contents

Preface

Distinct Element Modelling of Mechanical Alloying in a Planetary Ball Mill M.P. Dallimore and P.G. McCormick	5
Impact Energy and Reactive Milling: A Self Propagating Reaction G. Mulas, L. Schiffini and G. Cocco	15
Solid State Processing of Bulk Metallic Glass Forming Alloys J. Eckert, M. Seidel, N. Schlorke, A. Kübler and L. Schultz	23
The Effect of Milling Conditions and Impurites on the Properties of Mechanically Alloyed Zr-Based Metallic Glasses With Wide Supercooled Liquid Region M. Seidel, J. Eckert and L. Schultz	29
Nano-Scale Metal Multilayers Produced by Repeated Press-Rolling P.H. Shingu, K. Yasuna, K.N. Ishihara, A. Otsuki and M. Terauchi	35
Repeated Bulk Mechanical Alloying of Functional Metallic Alloys J. Kihara, T. Aizawa and O. Kobayashi	41
Mechanical Alloying of Fullerene With Metals M. Umemoto, K. Masuyama and K. Raviprasad	47
Mechanical Alloying of Titanium Based Materials P.S. Goodwin and C.M. Ward-Close	53
Mechanical Alloying of Ti-24Al-11Nb (AT%) Using the Simoloyer (ZOZ-Horizontal Rotary Ball Mill) H. Zoz, D. Ernst, H. Weiss, M. Magini, C. Powell, C. Suryanarayana and F.H. Froes	59
Effect of Al Content on Structural Changes in Mechanically Alloyed Al-Ti Powder Mixtures A.V. Leonov, E. Szewczak, O.E. Gladilina, H. Matyja and V.I. Fadeeva	67
Instant Formation of TiN by Reactive Milling of Ti in Nitrogen Z.-. Chin and T.P. Perng	73
Grain Size Effects and Consolidation in Ball-Milled Nanocrystalline NiAl I. Börner and J. Eckert	79
Mechanical Alloying of Ni-Nb Alloys M.H. Enayati, I.T.H. Chang, P. Schumacher and B. Cantor	85
Amorphous Fe-Al Alloys Obtained by Mechanical Alloying D. Oleszak and P.H. Shingu	91
Formation of Ternary Intermetallic Phase by Mechanical Allooying of Al-Fe-Ge M. Burzyńska-Szyszko, V.I. Fadeeva and H. Matyja	97
Effects of High Energy Ball Milling on Ceramic Oxides E. Gaffet, D. Michel, L. Mazerolles and P. Berthet	103
Phase Stability in Non-Stoichiometric Iron-Cobalt Oxides Prepared by Mechanochemical Activation W.A. Kaczmarek	109
Mechanisms of Multi-Component Perovskite Synthesis from Stoichiometric Mixtures by a Soft-Mechanochemical Route J.G. Baek, K. Gomi, T. Watanabe, T. Isobe and M. Senna	115
Amorphization of Ni-Si-C Ternary Alloy Powder by Mechanical Alloying Z.-. Chin and T.P. Perng	121
Synthesis of Metastable Fe₃C, Co₃C and Ni₃C by Mechanical Alloying Method K. Tokumitsu	127
Phase Formation and Properties in Mechanically Alloyed and Ball Milled RE-TM-Borocarbides J. Eckert, K. Jost, O. De Haas and L. Schultz	133
The Synthesis and Structure of Nanocrystalline Spinel Ferrite Produced by High-Energy Ball-Milling Method V. Šepelák, A.Y. Rogachev, U. Steinike, D.-. Uecker, F. Krumeich, S. Wißmann and K.D. Becker	139
Ni-Zn Ferrite Nanoparticles Prepared by Ball Milling G. Nicoara, D. Fratiloiu, M. Noguès, J.L. Dormann and F. Vasiliu	145

Reactive Milling and Sintering of Nb-16at.% Si Mixtures	151
M.N.R.V. Perdigão, J.A.R. Jordão, C.S. Kiminami and W.J. Botta Filho	
Mechanical Alloying Behavior in Molybdenum-Silicon System	157
B.K. Yen, T. Aizawa and J. Kihara	
Solid State Reactions of V₇₅Si₂₅ Driven by Mechanical Alloying	163
L.H. Liu, S. Casadio, M. Magini, C.A. Nannetti, Y. Qin and K. Zhen	
Mechanical Alloying as an Amorphization Route: Application to FeNiPSi Alloys	169
T. Pradell, J.J. Suñol, M.T. Clavaguera-Mora and N. Clavaguera	
Mechanical Alloying in Immiscible Systems	175
M. Angiolini, G. Mazzone, A. Montone and M. Vittori Antisari	
On the Role of Intergrain Boundaries in Solid/Gas Mechanochemical Synthesis	181
A.N. Streletskei, A.V. Leonov and P.Y. Butyagin	
Solid Solubility in Nanocrystalline Ti/Mg and Mg/Ti Composites Powder Produced by Mechanical Alloying	187
M. Hida, K. Asai, Y. Takemoto and A. Sakakibara	
Nanocrystalline FeNbCuSiB Magnetic Alloys Obtained by Ball Milling	193
J.S. Garitaonandia, L. Righi, J.M. Barandiarán, P. Gorria, F. Leccabue and B.E. Watts	
Ni-SiO₂ Nanocomposite Powders by High Energy Ball Milling	199
A. Corrias, G. Paschina, P. Sirigu and D. Zedda	
Reversible α-Fe₂O₃ to Fe₃O₄ Transformation during Ball Milling	205
S. Linderoth, J.Z. Jiang and S. Mørup	
A Study of Milling of Pure Polymers and A Structural Transformation of Polyethylene	211
H.L. Castricum, H. Yang, H. Bakker and J.H. Van Deursen	
Characterization of Mechanosynthesized Sulphides	217
P. Baláz, Z. Bastl, T. Havlík, J. Lipka and I. Toth	
Friction-Free Mechanical Grinder	223
K. Szymański, P. Zaleski, K. Rećko and J. Waliszewski	
Formation and Properties of Bulk Amorphous Pd-Ni-P Alloys	231
R.B. Schwarz and Y. He	
Synthesis and Characterisation of MgAl₂O₄ Spinel Ceramic Precursor	241
M.S. Wang and M. Muhammed	
Processing of Ultra-Fine Dispersion of TiB₂ in SiC Ceramic Matrix	249
C. Blanc and F. Thevenot	
Development and Characterization of Nanophase Si₃N₄-Based Ceramics	255
A. Bellosi, F. Monteverde, S. Botti and S. Martelli	
Nano-Powders From Gas-Phase Laser Driven Reactions: Characteristics and Applications	261
E. Borsella, S. Botti and S. Martelli	
Deposition of Nanocrystalline Metal Films by Cluster Beams Produced by a Pulsed Arc Cluster Ion Source	267
E. Barborini, P. Piseri, P. Milani and S. Iannotta	
Mechanical Alloying of Al₉₁Ni₅Cu₂Ti_{1.4}Zr_{0.4}Mm_{0.2} Powders and Electro-Discharge Consolidation into Bulk	273
J. Qiu, C. Rock, T. Shibata and K. Okazaki	
Formation of Metastable Phases in Condensed Matter by Shock-Wave Loading and 100-MJ Ballistic Facility. Results and Perspectives	279
Y.V. Shorokhov, B.V. Litvinov, V.N. Buzanov, A.A. Denisenko, A.Y. Yermakov, B.A. Greenberg and P.V. Kryukov	
Explosive Compaction of Nanosized TiN-Powders	285
T. Rabe, R. Prümmer and R. Waesche	
Synthesis and Characterization of CeO₂ Obtained by Spray Pyrolysis Method	291
M. Vallet-Regí, F. Conde, S. Nicolopoulos, C.V. Ragel and J.M. González-Calbet	
Magnetic Iron Oxide Nanoparticles Synthesized via Microemulsions	297
J. Mira, J.A. López-Pérez, M.A. López-Quintela and J. Rivas	
Influence of the Injection Pressure and Crucible-Wheel Distance on the Amorphous State in the Fe_{73.5}Ta₃Cu₁Si_{13.5}B₉ Alloy	303
N. Murillo, F. Leccabue, B.E. Watts, P. Marín, M. Vázquez, J. González and J.M. Barandiarán	
Formation of Nanoscale FCC-Al Particles in Al-Y-Ni-Co Amorphous Alloys	309
J. Latuch, A. Kokoszkiewicz and A. Calka	

Thermodynamic Issues in Nanocrystalline Materials	317
L. Battezzati	
On the Glass Forming Ability of Bulk Metallic Glasses	327
R. Busch, E. Bakke and W.L. Johnson	
Time and Temperature Dependence of Decomposition and Crystallization in a Multicomponent Bulk Metallic Glass Forming Alloy	337
S. Schneider, U. Geyer, P. Thiyagarajan and W.L. Johnson	
Small Atom Diffusion in the Glassy and Supercooled Liquid States of Bulk Amorphous ZrTiCuNiBe Alloys	343
U. Geyer, S. Schneider, Y. Qiu, M.P. Macht, T.A. Tombrello and W.L. Johnson	
Undercooling Experiments on the Re-Ta System in a 48-m High Drop-Tube Facility	349
S. Tournier and B. Vinet	
Metastable Phase Formation in Undercooled Nb-Al Melts	355
W. Löser, R. Hermann, M. Leonhardt, D. Stephan and R. Bormann	
Amorphous Phase Formation in the Fe-W System	361
H.Y. Bai, C. Michaelsen, W. Sinkler and R. Bormann	
Experimental Determination of the Formation Enthalpies of Nickel-Zirconium and Nickel-Zirconium-Titanium Amorphous Alloys	367
A.A. Turchanin, I.A. Tomilin and A.A. Zubkov	
Dissipative Structure during Formation of Solid Solutions Fe-Ti from Oxides under the Non-Equilibrium Conditions	373
A. Petelin and Y.S. Yusfin	
Phase Separation, Crystallization and Grain Growth: Micromechanism in the Design and Stability of Nanocrystalline Alloys	377
U. Köster	
Formation and Crystallization Behavior of Amorphous Zr₆₀Al₁₀Ni₉Cu₁₈Co₃ Produced by Mechanical Alloying and Rapid Quenching	389
A. Sagel, R. Wunderlich and H.J. Fecht	
The Effects of Preparation Techniques on Amorphisation and Thermal Phase Transformation in Pd-Si Binary System	395
W.H. Guo, F. Padella, M. Magini and C. Colella	
Nanocrystallisation Kinetics in Fe_{73.5}X₃Cu₁Si_{13.5}B₉ (X= Ta, Mo and Nb) Alloys	403
N. Murillo, F. Leccabue, B.E. Watts, I. Telleria, J. González and J.M. Barandiarán	
Kinetics of Formation of Al Nanocrystals from Amorphous Al-Sm Alloys	409
P. Rizzi, M. Baricco, L. Battezzati, P. Schumacher and A.L. Greer	
Kinetics of Reordering in A Nanograined FeAl Alloy	415
S. Suriñach, X. Amils, S. Galianella, L. Lutterotti and M.D. Baró	
Low Temperature Nanocrystallization of Iron-Based Amorphous Alloys	421
T. Kulik, J. Ferenc and H. Matyja	
Thermal Behaviour of Amorphous Zircon Prepared by Ball Milling	427
T. Puclin and W.A. Kaczmarek	
Thermal Treatment of Iron Ball Milled with Pyrazine (C₄H₄N₂)	433
G.M. Wang, S.J. Campell and W.A. Kaczmarek	
Electrical Resistivity Study of Nanocrystallization Kinetics in Al-Y-Ni-Co	439
K. Pękała, P. Jaśkiewicz, J. Latuch and A. Kokoszkiewicz	
Recrystallization of Na-Implanted Silicon	445
W.H. Wang	
Decomposition of Massively Transformed Ti-Al MA Powders	451
T. Fujii and K. Ameyama	
Growth of Semicoherent TiFe Nanoparticles in β-Ti Matrix	457
C.-. Lee, B.B. Radojević, F.-. Chen and T.P. Perng	
Crystallization of Amorphous Fe₇₈Si₉B₁₃ Alloy	463
T. Dolidze, F. Malizia, F. Ronconi and O. Donzelli	
Low Temperature Triple Junction Diffusion in Fine Scale Materials	469
A. Petelin	
The Role of Enthalpy in Structural and Property Changes of Intermetallic Compounds	477
H. Bakker, I.W. Modder, G.F. Zhou and H. Yang	

Microstructural and Structural Changes in Si and C Induced by Mechanical Attrition	487
C.C. Koch, T.D. Shen and Y. Fahmy	
Comparative Structural Studies of nanocrystalline Materials Processed by Different Techniques	487
R. Valiev, I.V. Alexandrov, W.A. Chiou, R.S. Mishra and A.K. Mukherjee	
Mechanically Activated State of Nanograins during and Just after In-Situ Deformation Using Synchrotron Radiation	497
A.R. Yavari, W.J. Botta Filho, A. Le Moulec, H. Graafsma and Å. Kvick	
Application of Synchrotron Radiation for Structural Analysis of Mesoscopic Structures Produced by Ball Milling	507
A. Calka, S. Wilkins, H. Hashizume, D.J. Cookson and J.I. Nikolov	
Crystallization and Phase Separations in Amorphous Cu_{12.5}Ni₁₀Zr₄₁Ti₁₄Be_{22.5} Alloy, as Investigated by SANS	517
J.M. Liu, A. Wiedenmann, U. Gerold and H. Wollenberger	
A Study of Mechanically Alloyed Cu₇₀Fe₃₀ by Diffraction, Spectroscopy and DSC	523
S. Enzo, G. Mulas, R. Frattini, G. Principi, R. Gupta, R. Cooper and N. Cowlam	
Disordering of FeAl by Mechanical Milling	529
L.S.J. Peng and G.S. Collins	
Evolution of Short- and Long Range Order during the Milling of AlFe	535
M.T. Clavaguera-Mora, J. Zhu, M. Meyer, L. Mendoza-Zélis, F.H. Sánchez and N. Clavaguera	
Structural and Magnetic Investigation of Mechanically Alloyed Fe₁₀Al₉₀	541
M. Pękała and D. Oleszak	
Structural Evolution during Milling of Diluted Solid Solutions of Fe-Cu	547
M.J. Barro, E. Navarro, P. Agudo, A. Hernando, P. Crespo and A. Garcia Escorial	
Contrast Modulation during Decomposition of Supersaturated fcc-Cu Solid and Liquid Solutions	553
A. Garcia Escorial, W.J. Botta Filho, O. Drbohlav, P. Crespo, M. Urchulutegui, M. Vittori Antisari, A. Hernando and A.R. Yavari	
Phase Transformations and Hyperfine Interactions in Mechanically Alloyed Fe-Cu Solid Solutions	559
S.D. Kaloshkin, I.A. Tomilin, G.A. Andrianov, U.V. Baldokhin and E.V. Shelekhov	
Rapid Solidification and Mechanical Grinding of Cu-Zn Alloys	565
S. Galianella, M.D. Baró, X. Amils, S. Suriñach and A.R. Yavari	
X-Ray Study of the Initial Stage of the Formation of Supersaturated Solid Solutions during Mechanical Alloying and Role of Mixing Enthalpy in this Process	571
T.F. Grigorieva, A.P. Barinova, E.Y. Ivanov and V.V. Boldyrev	
Comparison of Disorder Induced Thermally and by Ball Milling in Ni₂MnSn	577
G. Le Caér, P. Delcroix, B. Malaman, R. Welter, B. Fultz and E. Ressouche	
Nano-Structure and Properties of Severely Deformed TiAl and Their Evolution on Annealing	583
A.V. Korznikov, G.F. Korznikova, R. Valiev and O. Dimitrov	
Nanoscale Ordering in Amorphous Silicon Powders Formed by Plasma Induced Reaction of Silane	589
H. Hofmeister, J. Dutta and H. Hofmann	
Interfaces and Defects in Nanocrystalline Oxides	595
D. Michel, L. Mazerolles and E. Gaffet	
The Microstructure of Mechanically Alloyed MoSi₂ With Ni and Al Additions	601
A.J. Heron and G.B. Schaffer	
Structure and Properties of MoS₂ Films	607
N. Mattern, H.U. Hermann, G. Weise, A. Teresiak and H.D. Bauer	
An "In Situ" Mossbauer Study of the Crystalline Phase Emerging during Amorphous Alloy Crystallization	613
A.Á. Novakova and T.Y. Kiseleva	
Sims Characterization of Noble Metal-Based Thin Film Electrodes	619
C. Piccirillo, S. Daolio, S. Gelosi, C. Pagura, B. Facchin and J. Kristof	
Structural Changes Caused by GeV Heavy Ions in Metals	625
P.M. Ossi and R. Pastorelli	
Surface Spin Disorder in Ferrite Nanoparticles	631
R.H. Kodama, A.E. Berkowitz, E.J. McNiff Jr. and S. Foner	
	643

Magnetic Hysteresis in Fe/SiO₂ and Fe/BN Granular Solids	651
J.A. Christodoulides and G.C. Hadjipanays	
Dispersions of γ-Fe₂O₃ Nanoparticles. Mössbauer Spectroscopic Studies of the Superparamagnetic Relaxation	659
E. Tronc and J.P. Jolivet	
Dynamical Properties of γ-Fe₂O₃ Nanoparticles Dispersed in a Polymer	669
J.L. Dormann, F. D'Orazio, F. Lucari, L. Spinu, E. Tronc, P. Prené, J.P. Jolivet and D. Fiorani	
On the Antiferromagnetism of Fe-Rh	675
A. Hernando, J.M. Rojo, R. Yavari, E. Navarro, J.M. Barandiarán and M.R. Ibarra	
Correlation Between Magnetic and Structural Properties of Nanocrystalline Fe₈₅Zr₇B₆Cu₂ Alloys	685
A. Ślaw ska-Waniewska, A. Roig, J.S. Muñoz Domínguez, P. Nowicki, R. Źuberek and J. González	
The Effect of Stress and Field Annealing on the Magnetic Properties of Amorphous Fe_{85-x}Co_xB₁₅	691
E. Wittig, R. Grössinger, R. Sato Turtelli and C. Kussbach	
Magnetic Properties of Nanostructured Ferromagnetic Metals	699
J.F. Löf fler, W. Wagner, H. Van Swygenhoven, J. Meier, B. Doudin and J.-. Ansermet	
Static and Dynamic Magnetic Properties of Melt-Spun Granular Cu_{100-x}Co_x Alloys	705
E. Agostinelli, P. Allia, R. Caciuffo, D. Fiorani, D. Rinaldi, A.M. Testa, P. Tiberto and F. Vinai	
Giant Magnetoresistance in Granular Co/Ag Films Prepared by the Deposition of Well-Defined Co Clusters	711
S. Rubin and H. Micklitz	
Giant Magnetoimpedance in Rapidly Solidified Nanocrystalline NiFe Fibers	717
P. Ciureanu, P. Rudkowski, M. Britel, D. Ménard, J.O. Ström-Olsen and A. Yelon	
Improved Soft Magnetic Properties of Nanocrystalline Fe-M-B-Cu (M = Zr, Nb) Alloys with High Saturation Magnetic Flux Density and Zero-Magnetostriction	723
A. Makino, A. Inoue, T. Hatanai and T. Bitoh	
Substitutions of Co for Fe in FeSiBCuNb Nanocrystalline Soft Magnetic Ribbon	729
D. Wexler, R. Bennett, M. Emr and K.P. Gillear d	
Field and Frequency Dependencies of the Complex Disaccommodation in Amorphous Fe_{85-x}Co_xB₁₅	735
J.P. Sinnecker, R. Sato Turtelli and R. Grössinger	
Influence of the Crystallisation Process in the Magnetic Properties of (Fe,Co)SiB(CuNb) Alloys	743
P. Marín, M. Vázquez, L. Pascual, D. Negri, F. Leccabue, B.E. Watts, H.A. Davies and A. Hernando	
Dependence of Magnetic Properties on Copper Content in Finemet Type Thin Layers	749
É. Kisdi-Koszó, I.A. Szabó, É. Zsoldos, Z. Vértesy, J.L. Lábár, P. Kollár and M. Kuzminski	
Dynamics of the Remagnetization Process in the Rapidly Quenched FeCuNbSiB Alloys	755
L. Ceniga, A. Zentko and M. Zentkova	
Thermomagnetic Behaviour and Structure of Nitrided Fe_{73.5}Cu₁Nb₃Si_{13.5}B₉ Ribbons	759
S. Grognet, H. Atmani, N. Larguet and J.P. Lebertois	
On the Nanostructural Formation Process in Fe-M-B (M=Zr or Nb) Soft Magnetic Alloys	765
K. Suzuki, J.M. Cadogan, V. Sahajwalla, A. Inoue and T. Masumoto	
Magnetism and Mössbauer Spectroscopy in Nanocrystalline FeNbCrCuB Alloy	771
I. Škorvánek, M. Miglierini and P. Duhaj	
The Influence of Processing Conditions on the Microstructure and the Magnetic Properties of Fe-Zr-Cu-(B)-Based Alloys Prepared by Mechanical Attrition	777
C. Stiller, J. Eckert, R. Schäfer, S. Roth and L. Schultz	
High Frequency Magnetoimpedance in Amorphous Co₇₁Fe₄B₁₅Si₁₀ Ferromagnetic Alloy	783
L. Brunetti, P. Tiberto and F. Vinai	
Sample Length Influence on Hysteresis Properties in Fe-Based Amorphous Wires	789
P. Tiberto, F. Vinai, C. Romito, H. Chiriac and F. Barariu	
On the Shape of Individual Barkhausen Pulse	795
A. Zentková, S. Uličiansky, A. Zentko and L. Ceniga	
Temperature Dependence of Magnetization of Amorphous Tm-Co-B Alloys; Mean Field Analysis	801
B. Idzikowski, A. Handstein, K.-. Müller and L. Schultz	

FE-Rich Fe₁₄Nd₂B₁ Type Hard-Soft Nanocrystalline Magnetic Materials	807
D. Negri, A.R. Yavari, M. Vazquez, A. Hernando, A. Deriu and T. Hopfinger	
Superparamagnetic Regime in γ-Fe₂O₃ Nanoparticle Systems; Effect of the Applied Magnetic Field	813
C. Vaz, M. Godinho, J.L. Dormann, M. Noguès, A. Ezzir, E. Tronc and J.P. Jolivet	
Magnetic Properties of a Few Material Systems Made by Mechanical Alloying and Milling	819
J. Tang	
Study of Magnetoresistance in Nano-Structured Co-Ag Alloys Produced by Mechanical Alloying	825
K. Yasuna, A. Otsuki, K.N. Ishihara and P.H. Shingu	
Magnetization, Magnetically Modulated Microwave Absorption (MaMMA) and Magnetoresistance in Small Particles of La_{0.67}Ca_{0.33}MnO₃	831
R.D. Sánchez, J. Rivas, D. Caeiro, M. Östlund, M. Servin, C. Vázquez-Vázquez, M.A. López-Quintela, M.T. Causa and S.B. Oseroff	
Application of Co-P Nanostructured Multilayers to Detect Local Inhomogeneity of Magnetic Field	837
L. Lanotte, R. Germano, V. Iannotti and C. Luponio	
Quadruple-Defect Formation and Changes of Magnetic Properties in Cubic Laves Phases by Milling	843
I.W. Modder and H. Bakker	
Mechanical Properties of Nanophase Materials	851
R.W. Siegel	
Hardness, Strength, Ductility and Toughness of Nanocrystalline Materials	861
D.G. Morris and M.A. Morris	
High-Strength Al-Based Alloys Consisting Mainly of Nanoscale Quasicrystalline or Amorphous Particles	873
A. Inoue and H. Kimura	
Sinterforging and Indentation Creep of Nanophase TiAl	881
L. Kim, T. Klassen, R.S. Averback and C. Altstetter	
Grain Boundary Distributions, Texture and Mechanical Properties of Ultrafine-Grained Copper Produced by Severe Plastic Deformation	887
O.V. Mishin, V.Y. Gertsman, R. Valiev and G. Gottstein	
Elastic Energy Dissipation Measurements on Fe₅₀Al₅₀ and Fe₇₅Al₂₅ Nanostructured Compounds: a Structure Sensitive Probe of Metastability and Structure Evolution	893
E. Bonetti, L. Pasquini, E. Sampaolesi, G. Scipione and G. Valdrè	
Nanostructured Mesoporous Solids: From Colloids to Molecular Dynamics	901
A. De Stefanis and A.A.G. Tomlinson	
Electrocatalytic Properties of Ni-Zr Based Amorphous and Nanocrystalline Alloys	911
M. Baricco, F. Minichilli, E. Angelini, S. Spriano, F. Rosalbino, P. Spinelli and E.P.M.V. Angelini	
Electrocatalytic Behavior of Metastable Alloys Prepared by Ball Milling	917
T. Benameur, B. Rezgui, A.R. Yavari and R. Durand	
Electrocatalytic Performance of Nanocrystalline Ti-Ru-Fe-Cr-O Cathodes in Chlorate Electrolyte	923
S.W. Jin, A. Van Neste, E. Ghali, D. Guay and R. Schulz	
Nanoscale Pt Powders Derived from Solvated Pt Atoms in Catalysis	929
G. Vitulli, E. Pitzalis, A. Verrazzani, P. Pertici, P. Salvadori and G. Martra	
Nitric Oxide Reduction Catalyzed by Mechanically Alloyed Nickel-Zirconium Powder	935
W.E. Brower Jr., A.J. Montes, K.A. Prudlow, H. Bakker, A.C. Moleman and H. Yang	
Correlation of Gas Sensitive Properties with Fe₂O₃-SnO₂ Ceramic Microstructure Prepared by High Energy Ball Milling	941
J.Z. Jiang, S.W. Lu, Y.X. Zhou, S. Mørup, K. Nielsen, F.W. Poulsen, F.J. Berry and J. McMannus	
Stored Energy and Electromotive-Force of Mechanically Milled Copper	949
A. Otsuki, P.H. Shingu and K.N. Ishihara	
Activated Conduction in Tungsten Containing Diamond-Like Film	955
A.A. Bozhko, S. Chudinov, M. Evangelisti, S. Stizza and V. Dorfman	
Electrochemical Investigation of Nanocrystalline Ni Obtained by Different Preparation	961
M. Schneider, W. Zeiger, U. Birth, K. Pischang, E. Gaffet and O. El Kedim	

Optical Properties of Nanoscale Silicon Particles Obtained by CO₂ Laser Induced Reactions in a Flow Reactor		
E. Borsella, S. Botti, S. Martelli, R.M. Montereali, W. Vogel and E. Carlino		967
Nanostructuration of Pinning Centers in Directionally Solidified YBa₂Cu₃O₇-Y₂BaCuO₅ Composites		
B. Martinez, F. Sandiumenge, V. Gomis, A. Gou, N. Vilalta, R. Yu, S. Piñol, J. Fontcuberta and X. Obradors		973
Metastable Ti-Ru-Fe-O Nanocrystalline Alloys for the Hydrogen Evolution Reaction in the Chlorate Industry		
M. Blouin, L. Roué, S.-. Yip, D. Guay, J. Huot, S. Boily, A. Van Neste and R. Schulz		979
Application of High Energy Ball Milling in Mineral Materials: Extraction of TiO₂ from Mineral FeTiO₃		
Y. Chen and J.S. Williams		985
Ball Milled ZnO for Varistor Applications		
S. Boily, H. Alamdari, G. Cross, A. Joly, A. Van Neste, P. Grüttner and R. Schulz		993