

Table of Contents

Preface, Committees, Sponsors and Conference Photo

I. Plenary and Oral Session

Powder X-Ray Structure Refinement Applying a Theory for Particle Statistics	3
T. Ida	
Structural Study of Magnesium Coatings on Copper Substrates by Pack Cementation	9
D. Stathokostopoulos, D. Chaliampalias, E. Pavlidou, G. Vourlias and G. Stergioudis	
Analysis of Twin Boundary in Single Crystal of Ni-Mn-Ga Martensite Using Powder Laboratory Diffractometer	13
J. Drahokoupil, L. Straka and O. Heczko	
Multi-Technique Approach for Nanoparticles Characterization on a Laboratory X-Ray Diffractometer	17
M. Sommariva	
Crystal Inclusions in Diamonds and Other Crystals	21
W. Hofmeister	
HRTEM and LACBED of Zigzag Boundaries in GaN Epilayers	24
E. Jezierska and J. Borysiuk	
Structural Aspects of Ferrite and Austenite Co-Deformation in Duplex Stainless Steel	28
J. Ryś and A. Zielińska-Lipiec	
Microstructural Analysis of a Thermomechanically Processed Si-Al TRIP Steel Characterized by EBSD and X-Ray Techniques	34
A. Grajcar, K. Radwański and H.J. Krztoń	
The Studies of Texture in Cold Rolled and Annealed Sheets of Mn-Al Steel	38
H.J. Krztoń, D. Kuc and Z. Kania	
Nanostructured and Modulated Low-Dimensional Systems	42
A. Prodan, H.J.P. van Midden, E. Zupanič and R. Žitko	
Solidification Rate Influence on Microstructure of Composites with Quasicrystal Phase Fraction	48
J. Krawczyk and W. Bogdanowicz	

II. Young Scientist Session

Study of Alloys Ir_xRe_{1-x} (x = 0.65, 0.75 and 0.85)	55
A. Panchenko, T. Dyachkova, S. Gromilov and Y. Zaynulin	
Effect of Aging on the Microstructure and the Intergranular Corrosion Resistance of X2CrNiMoN25-7-4 Duplex Stainless Steel	59
P. Szabracki and T. Lipiński	
Characterization of Single-Crystal Turbine Blades by X-Ray Diffraction Methods	63
W. Bogdanowicz, R. Albrecht, A. Onyszko and J. Sieniawski	
The Analysis of the First Stage Tempering of the Medium Carbon Cr-Mn-Mo Alloy Steel	67
R. Dziurka and J. Pacyna	
Microstructure and Texture Evolution in a Cold-Rolled High Mn Steel with Microadditions of Ti and Nb	71
S. Kołodziej, J. Kowalska, W. Ratuszek, W. Ozgowicz and K. Chruściel	
Temperature Analysis of Structural Changes in Sr_xBa_{1-x}Nb₂O₆ Single Crystals	77
R. Paszkowski, K. Wokulska and J. Dec	
Synthesis and Characterization of New Bimetallic Pt,Ag/SBA-15 Materials	81
M. Zienkiewicz-Strzałka, M. Rotko and S. Pikus	
Fractal Analysis of AFM Data Characterizing Strongly Isotropic and Anisotropic Surface Topography	86
M. Bramowicz, S. Kulesza, T. Lipiński, P. Szabracki and P. Piatkowski	

Structure of Multi-Layers Deposited on NiTi Shape Memory Alloy K. Dudek, B. Szaraniec, J. Lelątko and T. Goryczka	90
Microstructural Evolution and Corrosion Behavior of Carburized α-Fe Plates by Glucose E.M. Pechlivani, F. Stergioudi, C. Vogiatzis, S. Skolianos and D. Stróż	94

III. Poster Session

Texture in NiTi-Based Shape Memory Alloys Produced by Twin Roll Casting T. Goryczka and P. Ochin	101
Analysis of Deformation Texture in AISI 304 Steel Sheets A. Kurc-Lisiecka, W. Ozgowicz, W. Ratuszek and J. Kowalska	105
Textures of the Hot-Forged Ti6Al4V Alloy A. Bunsch, W. Ratuszek, M. Witkowska, J. Kowalska and A. Łukaszek-Sołek	111
Influence of Cold Plastic Deformation on the Development of the Texture in High-Manganese Austenitic Steel J. Kowalska, W. Ratuszek, M. Witkowska and A. Zielińska-Lipiec	115
Texturing of Magnetite Forming during Long-Term Operation of a Pipeline of 10CrMo9-10 Steel M. Gwoździk and Z. Nitkiewicz	121
Low-Temperature XRD Study of Phase Transformations in NiTi and TiNiCo Shape Memory Alloys Used for the Preparation of the Prototypes of Medical Implants Z. Lekston and M. Zubko	125
XRD Based Methods of Investigation the Order - Disorder Transformation in the Spinel Structure - A Comparative Study J. Podwórny	129
Microstructure of Ni/Al_2O_3 Electrodeposited Coatings Studied with XRD and SEM Techniques A. Góral, M. Nowak and J. Wojewoda-Budka	133
Study of Fe₇₅Al₂₅ Alloys by the Mössbauer Spectroscopy Positron Annihilation Lifetime Spectroscopy (PALS), XRD and SEM A. Hanc-Kuczkowska, J. Kansy, G. Dercz, L. Pająk, J. Lelątko and J. Deniszczyk	137
Study of Structure and Strain in Au/Cu Systems Using Molecular Dynamics Simulation: X-Ray Scattering Analysis D. Chocyk and T. Zientarski	142
X-Ray Analysis of New Gadolinium Doped CuCr₂Se₄ E. Maciążek, P. Zajdel, I. Jendrzejewska and M. Mendakiewicz	146
The Comparative Study of Phase Composition of Steels Using X-Ray Diffraction and Mössbauer Spectroscopy Methods P. Pawluk, E. Skołek, M. Kopcewicz and W. Świątnicki	150
Quantitative X-Ray Phase Analysis as a Method of Control of Iron Blende Roasting Process M. Staszewski, P. Kapias, K. Bilewska, M. Kamińska and M. Osadnik	156
Molecular Dynamics Study of Adatom Size Effect on Stress Evolution in Lennard-Jones Thin Films: X-Ray Scattering Analysis T. Zientarski and D. Chocyk	160
Investigation of TiO₂ Thin Coatings for Medical Applications by X-Ray Diffraction and Raman Microspectroscopy J. Jasinski, B. Rajchel, M. Lubas, J. Jasiński, B. Kucharska and P. Podsiad	165
Gamma Prime Crystal Lattice Orientation of Turbine Blades of the Single Crystal Nickel Based CMSX-4 Superalloy A. Onyszko	169
Characterization of As-Cast Single-Crystal CMSX-4 Superalloy Turbine Blades W. Bogdanowicz, A. Onyszko, J. Rak, R. Albrecht, G. Dercz, A. Hanc, A. Nowotnik, D. Stróż and J. Lelątko	173
Two Methods of Studying Structure Perfection of Single Crystal Nickel-Based Superalloys A. Onyszko, J. Sieniawski, W. Bogdanowicz and H. Berger	177
X-Ray Investigations of Polycrystalline Compounds with General Formula ZnCr_{2-x}Nd_xSe₄ I. Jendrzejewska, P. Zajdel, T. Goryczka, E. Maciążek and J. Mrzigod	181

Modeling of Polymer Structure with the Use of SAXSDAT Computer Program M. Rabiej and S. Rabiej	185
Digital Filtering and Shape Identification in the Analysis of WAXD Patterns of Semicrystalline Polymers M. Rabiej	189
Characterization of CdCrTe Layers Obtained by Pulsed Laser Deposition P. Sagan, V. Popovych, M. Bester and M. Kuzma	193
TEM Investigations of (Ti, Si)N Layer Coated on Magnesium Alloy Using PVD Technique T. Tański, K. Labisz and J. Szewczenko	198
Characteristic of Crystallite Sizes and Lattice Deformations Changes in the Oxide Layer Formed on Steel Operated for a Long Time at an Elevated Temperature M. Gwoździk	204
Determination of Elastic Modulus and relative Permittivity from Analysis of Auger Electron and Characteristic Loss Spectra in Carbon Layer Systems E. Rówinski	208
Characterization of Electrophoretically Deposited Chitosan Coatings on Ti13Zr13Nb Alloy for Biomedical Applications B. Łosiewicz, G. Dercz, M. Szklarska, W. Simka, M. Łeżniak, A. Krząkała and A. Swinarew	212
Structure and Properties of Electrolytic Zn-Mn Coatings Deposited by the Galvanostatic Method M. Popczyk, K. Wykpis and B. Bierska-Piech	216
Zirconia Modified Aluminide Coatings Deposited by VPA and CVD Methods R. Filip, A. Nowotnik and M. Góral	220
Influence of Thermal Treatment on the Structure and the Corrosion Resistance of Zn-Ni Alloy Coatings M. Popczyk, B. Łosiewicz, G. Dercz and A. Smołka	224
Microstructure of CrAlSiN+DLC Coating Deposited onto Hot Work Tool Steel J. Konieczny and K. Lukaszkowicz	228
Structure and Martensitic Transformation in NiMnSn Alloy Ribbons with Partial Sn Substitution by Al W. Maziarz, P. Czaja, M. Faryna, T. Czeppe, A. Góral and J. Dutkiewicz	232
Structure of Electrodeposited Zinc Oxide Films on NiTi Shape Memory Alloy for Biomedical Applications P. Kowalski, B. Łosiewicz and T. Goryczka	236
Structure and Phase Transformation in Ni-Co-Mn-In Ferromagnetic Shape Memory Alloys K. Reclik, K. Prusik, T. Goryczka, M. Kubisztal and D. Stróż	240
The Influence of High-Temperature Heat Treatment on the Microstructure of Mg-5Al-3Ca-0.7Sr-0.2Mn Magnesium Alloy T. Rzychoń	246
The Microstructure and Mechanical Properties of Al-7%SiMg Alloy Treated with a Exothermic Modifier Contained Na and B T. Lipiński, M. Bramowicz and P. Szabracki	250
Anti-Twinning in an Ni-Mo-Cr Alloy M. Wróbel, E. Stępnowska and S. Dymek	254
EBSD Analysis of Friction Stir Welded 7136-T76 Aluminum Alloy I. Kalemba-Rec, K. Muszka, M. Wróbel, S. Dymek and C. Hamilton	258
Electron Diffraction Reinvestigation of CdCr₂Se₄ and ZnCr_{2-x}V_xSe₄ Spinel Structures M. Zubko, J. Wspaniała, D. Stróż and E. Mugnaioli	262
Optical and Scanning Electron Microscope Studies of Recycled (Secondary) Al-Si Cast Alloys L. Hurtalová, E. Tillová, M. Chalupová and J. Piątkowski	266
Phase Transformation in Al₃Ni₂ Alloy during Mechanical Alloying and Heating of Milling Products M. Krasnowski and T. Kulik	272
Preparation and Structural Examinations of Gd+Ni Nanocomposites M. Kubisztal, J. Kubisztal, A. Chrobak, M. Karolus, K. Prusik and G. Haneczok	276
Effect of Ball Milling on Structure and Magnetic Properties of Fe-Nb-B-Tb Bulk Nanocrystalline Alloys A. Chrobak, J. Klimontko, M. Kubisztal, G. Haneczok, G. Ziółkowski and A. Kachel	280

Microstructure of Hard Magnetic FeCr22Co15 Alloy Subjected to Tension Combined with Torsion at High Temperatures	284
A. Korneva, G. Korznikova, R. Kashaev and K. Sztwiertnia	
Structural, Magnetic and Crystallization Study of Fe-Based Bulk Metallic Glasses	288
R. Babilas, R. Nowosielski, W. Pilarczyk and G. Dercz	
Magnetic Properties of Tb(Ni_{0.95}Fe_{0.05})₃ Crystalline Compound and Powder	292
K. Ociepka, A. Bajorek, A. Chrobak and G. Chelkowska	
Influence of Copper Addition on Glass Forming Ability, Thermal Stability, Structure and Magnetic Properties of Fe-Co-Based BMGs	296
S. Lesz, R. Babilas and R. Nowosielski	
Phase Structure and Magnetic Properties of Fe-Nb-B-Nd Type of Bulk Nanocrystalline Alloys	302
G. Ziolkowski, A. Chrobak and J. Klimontko	
Hot Extrusion of Ni-Based Polycrystalline Ferromagnetic Shape Memory Alloys	306
K. Prusik, K. Reclik, D. Stróz, T. Goryczka, J. Lelątko and W. Gurdziel	
Magnetic and Elastic Properties of Nanocomposites Containing Soft (Ni) and Hard (SrFe₁₂O₁₉) Magnetic Particles	310
M. Kubisztal, A. Chrobak, J. Kubisztal, J. Stabik, A. Dybowska and G. Haneczok	
A Magnetic Force Microscopy Study of Magnetic Domain Structure in Maraging Steel	315
M. Bramowicz and S. Kulesza	
Rietveld Analysis of Aurivillius-Type Structure Ceramics Synthesized from Precursors Prepared by Classical and HEBM Methods	319
J. Dercz, G. Dercz, K. Prusik and R. Babilas	
Microstructure and Electrical Properties of Nano- and Micro-Sized Powders of Y₂O₃ Type	323
G. Moskal, M. Mikuśkiewicz, A. Starczewska and G. Tomczykiewicz	
The CVD Aluminizing of TiAl Intermetallics	327
M. Góral, A. Nowotnik and J. Sieniawski	
High Temperature Study of Metamict Rinkite	331
M. Zubko, J. Kusz, D. Malczewski, T. Häger and W. Hofmeister	
Structure and Resistance to Electrochemical Corrosion of NiTi Alloy	335
B. Łosiewicz, M. Popczyk, T. Goryczka, J. Lelątko, A. Smołka and P. Kowalski	
Structure and Properties of Ni-Rich Shape Memory Alloy Subjected to Severe Deformation and Annealing	339
D. Stróz, J. Palka, Z. Lekston and A. Smołka	
Study of Point Defects in Fe-Al System by Mössbauer Spectroscopy and XRD Method	343
A. Hanc-Kuczkowska	
Computer Investigations of Features of RHEED Oscillations for GaAs and for Ge	347
Z. Mitura	
Microstructure Characterization of Superfine WC-Co Powders	351
G. Moskal, K. Szymański, A. Tomaszewska and H. Myalska	
Sigma Phase Precipitations in Duplex Steel SAF 2205	355
M. Witkowska, W. Ratuszek, J. Kowalska and K. Chruściel	
Microstructure of the Fe-Ni-P Melt-Spun Ribbons Produced from the Single-Chamber and from the Double-Chamber Crucibles	361
K. Ziewiec, K. Prusik, K. Bryła and A. Ziewiec	
Microstructural Aspect of Ageing Process of GP91 Cast Steel	368
G. Golański and J. Kępa	
The Microstructure of Quasicrystalline Al-Cu-Fe Alloys Doped with Tungsten	372
W. Gurdziel, J. Krawczyk and W. Bogdanowicz	
The Fracture Morphology of Composites with Quasicrystalline Phase	376
W. Bogdanowicz and J. Krawczyk	
Structural Studies of the Relaxed Amorphous Phase in the Fe₈₁B₁₄Nb₅ Alloy	380
M. Karolus	
The Study of Local Structure of Amorphous Fe-Co-B-Si-Nb Alloy by Atomic Pair Distribution Function	386
W. Pilarczyk and J. Podwórny	
Mechanical Synthesis and Heat Treatment of Ni₇₅Ti₂₅ Alloy	390
J. Panek, B. Bierska-Piech and J. Niedbała	

Characterization of Ni₇₅Mo₂₅ Alloy Prepared by Mechanical Alloying and Heat Treatment J. Panek, B. Bierska-Piech and J. Niedbała	394
Changes in the Structure of Palladium Nanograins in the Carbon Film (C-nPd) under the Influence of Hydrogen R. Diduszko, M. Kozłowski, E. Czerwosz, A. Kamińska and R. Nietubyc	398
Calculation of Electronic Structure of the K-Phase Cells which are Involved in Thermobarically Induced Epitaxial Growth of Diamond Crystals in High-Carbon Fe-Al-Alloys A.A. Mekhed and V.A. Andrushenko	402
Influence of the Crystallographic Orientation of CuZn30 Single Crystal on the Portevin-Le Chatelier Effect B. Grzegorczyk, W. Ozgowicz and E. Kalinowska-Ozgowicz	406
Study of Defects Structure in Fe-Al Alloys E. Bernstock-Kopaczyńska and M. Jabłońska	411
Influence of Overheating Temperature on the Shape of Primary Silicon Crystals in Hypereutectic Al-Si Cast Alloys J. Piątkowski	417
Stability of Thermally Processed LaNi₅-Based Alloys for Hydrogen Storage A. Wrona, A. Sierczyńska, K. Bilewska, M. Kamińska and M. Staszewski	423
On Frequencies of Occurrence of Geometrically Characteristic Grain Boundaries K. Glowinski	427
The Specific Heat Capacity and Oxidation Kinetics of NiAl, FeAl and TiAl Alloys J. Piątkowski, R. Przeliorz and M. Jabłońska	431
Microstructural Characterization of Ni(Co)CrAlY Powders Designed for Thermal Spraying of Bondcoat for TBC Systems G. Moskal	435
Crystalline and Lamellar Structure of Polypropylene Fibrillated Fibres M. Bączek, C. Ślusarczyk and J. Broda	439