

CONTENTS

A. Ziębowicz, A. Woźniak, B. Ziębowicz, K. Kosiel, G. Chladek, The Effect of Atomic Layer Deposition of ZrO ₂ on the Physico-chemical Properties of Cobalt based Alloys Intended for Prosthetic Dentistry.....	1077
D. Pavlov, A. Bogatov, E. Pavlova, H. Dyja, Investigation of Plug Rolling with Stub Mandrel Using the Finite Element Method.....	1083
B. Szczucka-Lasota, T. Węgrzyn, A. Kurc-Lisiecka, J. Piwnik, The Combined Influence of Molybdenum and Nickel in Steel Welds	1087
A. Torkian, G. Faraji, M. Karimpour, Mechanical Properties and Microstructure of WE43 Mg Alloy Processed by Warm ECAP Followed by Extrusion.....	1093
N. Izairi, F. Ajredini, A. Vevecka-Pfiftaj, P. Makreski, M.M. Ristova, Microhardness Evolution in Relation to the Crystalline Microstructure of Aluminum Alloy AA3004	1101
M. Bramowicz, S. Kulesza, T. Chrostek, C. Senderowski, Application of Fractal Analysis Methods for Lift Height Optimization in Magnetic Force Microscopy Measurements	1109
C. Hamilton, S. Dymek, A. Węglowska, A. Pietras, Numerical Simulations for Bobbin Tool Friction Stir Welding of Aluminum 6082-T6	1115
J. Górką, Structure and Properties of Hybrid Laser Arc Welded T-Joints (Laser Beam – MAG) in Thermo-Mechanical Control Processed Steel S700MC of 10 mm thickness	1125
M. Rajca, R.T. Bray, K. Fitobór, K. Golombek, Laser Granulometer as an Useful Tool for Selection of Appropriate Membranes Used in the MIEX®DOC-UF/MF Hybrid Process.....	1133
A.R. Subhani, D.K. Mondal, Effect of Repeated Austenitisation and Cooling on the Microstructure, Hardness and Tensile Behaviour of 0.16 wt % Carbon Steel	1141
Z. Nie, Y. Lin, Q. Tong, Computational Modeling of the Elastic Property of Three-Dimensional Open Cell Foams	1153
W. Sheng, Y.-Y. Shen, Z. Sheng-Quan, Leaching of High Arsenic Content Dust and a New Process for the Preparation of Copper Arsenate	1167
M. Krupiński, Effect of Addition Ce on Crystallisation Kinetics and Structure of Zn-Al-Cu Alloys	1173
T. Ramkumar, P. Narayanasamy, M. Selvakumar, P. Balasundar, Effect of B ₄ C Reinforcement on the Dry Sliding Wear Behaviour of Ti-6Al-4V/B ₄ C Sintered Composites Using Response Surface Methodology	1179
V. Malau, Akhyar, P. Tri Iswanto, Modification of Constrained Rod Casting Mold for New Hot Tearing Measurement	1201
A. Woźniak, B. Ziębowicz, A. Ziębowicz, W. Walke, Physicochemical Properties of Oxide ZrO ₂ Layer Deposited by Sol-Gel Method on Ti-6Al-7Nb Alloy	1209
X. Fu, M. Chu, L. Gao, Z. Liu, Mechanism and Kinetics Studies on Non-Isothermal Decomposition of Ludwigite in Inert Atmosphere	1217
C. Köse, E. Karaca, Effect of Pre and Post Weld Heat Treatments on the Microstructure and Mechanical Properties of Fiber Optic Beam Delivery System Assisted Robotic Nd: Yag Laser Welded Ti-6Al-4V Alloy	1225
H. Fuks, S.M. Kaczmarek, G. Leniec, J. Michalski, B. Kucharska, P. Wach, Magnetic Properties of Steel Ball Samples, Investigated before and after Nitriding	1235
D. Bochenek, R. Skulski, P. Niemiec, D. Brzezińska, K. Rogacki, The Magnetic and Electric Measurements of the Multiferroic PbFe _{1/2} Nb _{1/2} O ₃ Ceramics Obtained Using Hot Uniaxial Pressure Method	1243
Z. Liang, Y. Gui, Q. Zhao, Investigation of Microstructures and Mechanical Properties of T92 Martensitic Steel/Super304 Austenitic Steel Weld Joints Made with Three Welding Consumables	1249
A. Kajzer, K. Rabij, M. Basiaga, K. Nowińska, M. Kaczmarek, T. Borowski, T. Wierzchoń, Influence of Sterilization and Exposure to the Ringer's Solution on Mechanical and Physicochemical Properties of Nitrocarburized 316 LVM Steel	1257
P. Papliński, J. Wańkowicz, P. Ranachowski, Z. Ranachowski, Microstructure and Degree of Degradation of ZnO Varistors in Surge Arresters Due to Operation	1267
L. Kozielski, K. Feliksik, B. Wodecka-Duś, D. Szalbot, S. Tutu, Hot Pressed K _{0.5} Na _{0.5} NbO ₃ Material for Piezoelectric Transformer for Energy Harvesting	1275
K. Wieczorek, M. Jaroszewski, P. Ranachowski, Z. Ranachowski, Examination of the Properties of Samples from Glass-Epoxy Core Rods for Composite Insulators Subjected to DC High Voltage	1281
A. Berdowska, J. Berdowski, F. Aubry, Study of Graphite – Polymer – Turbostratic Carbon Composites by Acoustic Emission Method at Perpendicular Geometry	1287
D. Radoszewska, T. Goryczka, M. Adamczyk, B. Wodecka-Duś, D. Bochenek, L. Kozielski, Influence of Sr ²⁺ Dopant on Microstructure and Electric Properties of (Ba _{0.85} Ca _{0.15})(Zr _{0.1} Ti _{0.9})O ₃ (BCZT) Ceramics	1295
N. Jeyaprakash, M. Duraiselvam, R. Raju, Modelling of Cr ₃ C ₂ -25% NiCr Laser Alloyed Cast Iron in High Temperature Sliding Wear Condition Using Response Surface Methodology	1303
T. Mirzaie, H. Mirzadeh, M. Naghizadeh, Contribution of Different Hardening Mechanisms during Cold Working of AISI 304L Austenitic Stainless Steel	1317
J. Smołeń, T. Pawlik, M. Sopicka-Lizer, D. Michalik, Structure and Properties of Lightweight Ceramic Aggregates Based on Local Silesian Waste Materials	1321
A. Garbacz-Klempka, J.S. Suchy, Z. Kwak, P. Długosz, T. Stolarczyk, Casting Technology Experiment and Computer Modeling of Ornaments from Bronze Age	1329
B. Wicher, R. Chodun, K. Nowakowska-Langier, S. Okrasa, K. Król, R. Minikayev, G. Strzelecki, K. Zdunek, Structure and Electrical Resistivity Dependence of Molybdenum Thin Films Deposited by DC Modulated Pulsed Magnetron Sputtering	1339
S. Lipa, J. Sawicki, K. Dybowski, R. Pietrasik, B. Januszewicz, The Effect of Non-Metallic Inclusions Formed as a Result of Deoxidation on the Fatigue Strength of 15CrNi6 and 16MnCr5 Steel	1345
J. Dzik, K. Feliksik, T. Pikula, R. Panek, M. Rerak, Influence of Dy Doping on the Properties of BiFeO ₃	1351
M. Wojciechowska, K. Ziewiec, D. Mucha, Cooling Characteristic and Microstructure of Ni-Si-B-Ag Alloy	1357

R. Stencel, W. Pakiela, I. Barszczewska-Rybarek, J. Źmudzki, J. Kasperski, G. Chladek, Effects of Different Inorganic Fillers on Mechanical Properties and Degree of Conversion of Dental Resin Composites	1361
E. Jabłońska-Stencel, W. Pakiela, J. Źmudzki, J. Kasperski, G. Chladek, Influence of Chemical Composition on the Properties of Experimental Silicone-Based Soft Lining Composites	1371
K. Dybowski, P. Kowalczyk, P. Kula, A. Jeziorna, R. Atraszkiewicz, Ł. Kołodziejczyk, P. Zawadzki, D. Nowak, T. Kazimierczak, M. Kucińska, Graphene-Based Composite Membrane for Water Desalination	1379
J. Sawicki, J. Świńiarski, M. Stegliński, P. Byczkowska, Numerical Analysis of Twist Extrusion Pressing of Al-Mg-Mn-Sc-Zr Scalmalloy	1385
E. Pietrzak, Y. Sakka, J. Nakamura, P. Wiecinska, M. Szafran, Dense Alumina Ceramics Obtained by Gelcasting and Cold Isostatic Pressing with the Use of 2-Carboxyethyl Acrylate	1393
D. Bochenek, K. Osińska, P. Niemiec, M. Adamczyk, T. Goryczka, R. Szych, Technology and Electrophysical Properties of the $(K_{0.44}Na_{0.52}Li_{0.04})NbO_3$ Ceramics Doped by Cr^{3+} , Zn^{2+} , Sb^{3+} or Fe^{3+}	1401
S. Fida Hassan, Khin Sandar Tun, F. Patel, Nasser Al-Aqeeli, M. Gupta, Nickelization Effect on the High Temperature Tensile Properties of Mg-0.7Y ₂ O ₃ Nanocomposite	1411
A.N. Wieczorek, A. Stachowiak, W. Zwierzycski, Prediction of Tribocorrosive Properties of ADI Containing Ni-Cu-Mo	1417
J. Cebulski, D. Pasek, The Use of Plastic Working Alloys Feal to Perform Controls Elements of Turbocharger in Diesel Engine	1423
M.A. Haq, S.F. Abbas, Nu Si A. Eom, T.S. Kim, B. Lee, K.-T. Park, B.S. Kim, Microstructure Development of Spark Plasma Sintered Ti-Nb Alloy by Heat Treatment	1429
Eun Ju Jeon, Nu Si A. Eom, Jimin Lee, Bin Lee, Hye Mi Cho, Ji Sun On, Yong-Ho Choa, Bum Sung Kim, Multistep Heat-Treatment Effects on Electrospun Nd-Fe-B-O Nanofibers	1433
M. Oh, H.K. Yu, J.-H. Lee, M.C. Oh, S.-H. Jung, B. Ahn, Quantitative Analysis of Cryomilled Nanocrystalline Ti-6Al-4V Alloy Powder by X-Ray Diffraction	1439
I.-J. Park, D.-W. Kim, G.-H. Kim, H.-J. Chae, H.-C. Jung, Preparation of Nickel Powders by Reduction of Nickel Hydroxide Using the Taylor Fluid Flow	1443
K.-P. Jeong, S.-W. Yang, J.-G. Kim, Study on Crystal Structure and Magnetic Properties of Ba ₄ Co ₂ Fe ₃₆ O ₆₀ by Sol-Gel Method	1449
M.-T. Nguyen, J.-H. Kim, J.-C. Kim, Formation of Different Cu Nanopowders and Stability of Cu Fluids Produced by Electrical Explosion of Wire in Liquid	1453
Y.-A. Joo, T.-S. Yoon, S.-H. Park, K.-A. Lee, Microstructure and Compression Properties of Fe-Cr-B Alloy Manufactured using Laser Metal Deposition	1459
D.-Y. Wi, G.-S. Ham, S.-H. Kim, K.-A. Lee, Manufacturing and Macroscopic Properties of Y ₂ O ₃ Coating Layer on Ceramic (AlN) Substrate Fabricated by Aerosol Deposition	1463
A. Zakiyuddin, K. Lee, Microstructure and Corrosion Behaviors of Biodegradable Mg-1Zn-1Zr-xSn Alloys Prepared by Powder-In-Tube Rolling	1467
Y.-K. Yang, S.-J. Lee, Effects of PVA Polymer Type and Calcination Temperature on Synthesis of Nanocrystalline Yttria Powder by Polymer Solution Route	1473
D. Park, S.-J. Oh, I.-J. Shon, S.-J. Lee, Effect of Ni Content on the Austenite Stability and Mechanical Properties of Nanocrystalline Fe-Ni Alloy Fabricated by Spark Plasma Sintering	1477
S.-M. Yong, D.H. Choi, K. Lee, S.-Y. Ko, D.-I. Cheong, Influence of the Calcination Temperature on the Optical and Mechanical Properties of Y ₂ O ₃ -MgO Nanocomposites	1481
S.-Y. Ko, S.-M. Yong, S.J. Lee, D.-I. Cheong, S. Baek, Effect of Additives on the Densification Processes and Properties of Silica-Based CMCs	1485
S.-H. Lee, Microstructure and Mechanical Properties of AA1050/ AA6061/AA1050 Multi-Layer Sheet Fabricated by Cold Roll Bonding Process	1489
S.-H. Ha, B.-H. Kim, Y.-O. Yoon, H.-K. Lim, S.K. Kim, Combined Effect of Zr and Si on Isothermal Oxidation of Ti	1493
Y.-S. Cho, H. Jin, Lee, Fabrication of Porous Silica Fibers by Electrospinning for Sound Absorbing Materials	1497
H.S. Park, I. Son, Effect of Fe Content on the Contact Resistance of Electroplated Au-Fe Alloy Layers	1503
Jung Hyo Park, Seong Lee, Donghoon Kim, Youngmoo Kim, Sung Ho Yang, Sung Ho Lee, Fabrication of Mo-Si-B Intermetallic Compound Powders Under Different Heat Treatment Conditions	1509
Jung Hyo Park, Jaeho Choi, Kisu Lee, Jinwoo Park, Jung Kun Song, Eunkyoung Jeon, Enhanced Microwave Absorption of CNT Composites Mixing with Fe ₃ O ₄ and Carbonyl Iron	1513
K. Skibińska, D. Kutyła, K. Kołczyk, A. Kwiecińska, R. Kowalik, P. Żabiński, Electrocatalytical Properties of Palladium-Decorated Cobalt Coatings Obtained by Electrodeposition and Galvanic Displacement	1517
M. Fröhlichová, R. Findorák, J. Legemza, M. Džupková, The Fusion Characteristics of Ashes from Lignin and the Coke Breeze	1523
N. Ahmad, A. B. Ziya, S. Atiq, K. Saifullah, M. Hashim, M. Saleem, The Site Preference Analysis and Ordering Characteristics of Ternary Cu _{0.5} (Zn _{1-x} M _x) _{0.5} (M = Transition Metals) Alloys	1531
Ł. Rakoczy, M. Grudzień, R. Cygan, A. Zielińska-Lipiec, Effect of Cobalt Aluminate Content and Pouring Temperature on Mac- rostructure, Tensile Strength and Creep Rupture of Inconel 713C Castings	1537
Z. Glavas, A. Strkalj, K. Maldini, F. Kozina, Effect of Bismuth and Rare Earth Elements on Graphite Structure in Different Section Thicknesses of Spheroidal Graphite Cast Iron Castings	1547
W. Wołczyński, Pattern Selection in the Frame of Thermodynamic Similarity between Eutectics: Cu-Cu ₂ O and (Zn)-Zn ₁₆ Ti – Ex- periment	1555