

# Table of Contents

## Committees

## Preface

<b>Phase Stability in Hydroxyapatite / Barium Titanate Piezo Bioceramics</b>	1
A. Aba and C. Ergun	
<b>Effect of Bond Coat Diffusion on Adhesion Behaviour of Hard Alloy Powder NiCrBCSi (Fe) Coatings Thermally Sprayed on 60CrMn4 Steel</b>	8
S. Abdi, B. Malki and S. Lebaili	
<b>A Calorimetric Study on the Precipitation of T<sub>1</sub> Phase during the Ageing of an Al-Li-Cu-Zr Alloy</b>	14
S. Ahmadi, A. Shokuhfar, M.R. Abotalebi and A. Rezaei	
<b>Investigation of the Effects of GP Zones Formation on the Properties of AA2090 Alloy</b>	18
S. Ahmadi, A. Shokuhfar and A. Rezaei	
<b>Synthesis of Fe<sub>3</sub>O<sub>4</sub> Nanoparticles Prepared by Various Surfactants and Studying their Characterizations</b>	22
A. Shokuhfar, S. Alibeigi, M.R. Vaezi and S.K. Sadrnazhaad	
<b>Analysis of the Time-Dependent Heating on the Natural Convection from a Vertical Open Ended Porous Cylinder</b>	28
D.E. Ameziani, K. Bouhadef and R. Bennacer	
<b>Sonochemical Synthesis of SnO/ZnO Nano-Composite: The Effects of Temperature and Sonication Power</b>	34
N.A. Arefian, A. Shokuhfar, M.R. Vaezi, A. Esmaielzadeh Kandjani and M. Farzalipour Tabriz	
<b>Designing Cryogenic Vapour-Cooled Current Leads</b>	40
P.A. Augusto, T. Castelo-Grande, D. Barbosa and A.M. Estévez	
<b>Magnetically Stabilized and Fluidized Beds: Heat and Mass Transfer</b>	46
P.A. Augusto, T. Castelo-Grande, A.M. Estévez, D. Barbosa, J.M. Rodriguez, A. Álvaro and J. Sánchez	
<b>Analytical Solution of Unsteady Heat Diffusion within a Porous Copper Layer Deposited on Alumina Substrate and Subjected to a Moving Laser Beam</b>	52
H. Belghazi, M. El Ganaoui and J.C. Labbe	
<b>Growth Kinetics of Al-Si-Fe Intermetallics during Hot Dipping of Steel</b>	58
P. Rodriguez-Calvillo, R. Rouco and Y. Houbaert	
<b>Production of Electrical Steel by Hot Dipping in Aluminium</b>	63
P. Rodriguez-Calvillo, P. Bernárdez and Y. Houbaert	
<b>Microstructure Characterization by EBSD of Hot Rolled High-Silicon Steel</b>	69
P. Rodriguez-Calvillo, N. Salazar, J. Schneider and Y. Houbaert	
<b>The Enhanced Kinetics of Precipitation Effects in Ultra Fine Grained Mg Alloys Prepared by High Pressure Torsion</b>	75
J. Čížek, I. Procházka, B. Smola, I. Stulíková, V. Očenášek, R.K. Islamgaliev and O.B. Kulyasova	
<b>The Clustering of Cu Atoms in Neutron Irradiated Reactor Pressure Vessel Steels Studied by Positron Annihilation</b>	81
J. Čížek, I. Procházka and J. Kocík	
<b>Modeling of Flow and Transport Processes Occurred in a Typical Polymer Electrolyte Membrane Fuel Cell (PEMFC)</b>	87
E. Vakouftsi, G. Marnellos, C. Athanasiou and F.A. Coutelieris	
<b>Limits to N-Type Doping in Ge: Formation of Donor-Vacancy Complexes</b>	93
J. Coutinho, C. Janke, A. Carvalho, S. Öberg, V.J.B. Torres, R. Jones and P.R. Briddon	
<b>Co Anomalous Growth Kinetics of the CoSi Reaction Layer in a Si/System</b>	99
C. Cserháti, G. Glodán, A. Csik, G.A. Langer, Z. Erdélyi, Z. Balogh and D.L. Beke	
<b>Intrinsic Diffusivities and Modeling of the Diffusion Multiples</b>	105
M. Danielewski and B. Wierzba	
<b>Electro-Diffusion in Multicomponent Ion-Selective Membranes; Numerical Solution of the Coupled Nernst–Planck–Poisson Equations</b>	113
B. Grysakowski, B. Bożek and M. Danielewski	

<b>Experimental and Numerical Study on Vapor Condensation of Wet Flue Gas in Chimney</b>	119
N. Delalić, E. Džaferović and E. Ganić	
<b>Dynamic and Equilibrium Swelling of Biodegradable Starch-Based Superabsorbent Polymers</b>	126
R.O. Nasser, M. Vázquez da Silva, J.M.P.Q. Delgado, M.P. Gonçalves and C.T. Andrade	
<b>Experimental Values of Diffusion Coefficients of Organic Compounds in Water</b>	132
J.M.P.Q. Delgado	
<b>Effect of Temperature and Volume Changes on Effective Diffusivities of Sucrose and NaCl during Osmotic Dehydration of Vegetable Tissue</b>	138
L. Mayor, J.M.P.Q. Delgado, M. Vázquez da Silva, A.M. Sereno and M.P. Gonçalves	
<b>Numerical Study of Propane-Air Mixture Combustion in a Burner Element</b>	144
C.E.L. Pinho, J.M.P.Q. Delgado, R. Pilão, J. Conde and C. Pinho	
<b>Concentration Dependent Diffusion in Building Materials – Application of Different Methods</b>	150
N.M.M. Ramos, J.M.P.Q. Delgado and V.P. de Freitas	
<b>Anomalous Diffusion during Water Absorption in Porous Building Materials – Experimental Evidence</b>	156
N.M.M. Ramos, J.M.P.Q. Delgado and V.P. de Freitas	
<b>Influence of Burner Geometry on Flame Characteristics of Propane-Air Mixture: Experimental and Numerical Studies</b>	162
C.E.L. Pinho, J.M.P.Q. Delgado, V. Ferreira, R. Pilão and C. Pinho	
<b>Systematics of Grain Boundary Diffusion and Solute Segregation in Copper Poly- and Bicrystals</b>	168
S.V. Divinski	
<b>Metal Oxides Interaction with Reducing Gas in Bubble Ore Melt</b>	176
A.N. Dmitriev, D.Z. Kudinov and L. Leontiev	
<b>About Forecasting Durability of Particles of Iron Powders and Sintered Materials</b>	181
A.N. Dmitriev and V.I. Bulanov	
<b>Boundary Conditions in the Diffusion of Fluids in Swelling Polymers</b>	186
A.L. Durier, K. Derrien and P. Gilormini	
<b>Effect of Synthesis Temperature on the Morphology of ZnO Nanoparticles Obtained via a Novel Chemical Route</b>	192
J. Samei, A. Shokuhfar, A. Esmaielzadeh Kandjani and M.R. Vaezi	
<b>Investigation of Reaction Conditions on Alcohol-Thermal Synthesis of ZnO Nanoparticles</b>	198
A. Esmaielzadeh Kandjani, M.R. Vaezi, A. Shokuhfar and M. Farzalipour Tabriz	
<b>An Investigation on the Mechanism of TiC+Al<sub>2</sub>O<sub>3</sub> Formation in the Combustion Synthesis of the Mechanically Activated TiO<sub>2</sub>-Al-C System</b>	204
S.H.R.F. Nayeri, J.V. Khaki and M.R. Aboutalebi	
<b>An Investigation on the Mechanism of TiC+Al<sub>2</sub>O<sub>3</sub> Combustion Synthesis via Mechanical Activation of Double Phases in TiO<sub>2</sub>-Al-C System</b>	210
S.H.R.F. Nayeri, J.V. Khaki and M.R. Aboutalebi	
<b>Calculations of the Effective Thermal Conductivity in a Model of Syntactic Metallic Hollow Sphere Structures Using a Lattice Monte Carlo Method</b>	216
T. Fiedler, A. Öchsner, I.V. Belova and G.E. Murch	
<b>Thermal Conductivity Enhancement of Compact Heat Sinks Using Cellular Metals</b>	222
T. Fiedler, A. Öchsner, I.V. Belova and G.E. Murch	
<b>A Model of Single Molecule Magnet Behavior of the [Cu<sup>II</sup>L Tb<sup>III</sup>(hfac)<sub>2</sub>]<sub>2</sub> Cluster</b>	227
S. Ostrovsky, O. Reu, A. Palii, A.Y. Fishman, V.Y. Mitrofanov, P. Tregenna-Piggott, A.S. Moskvin and S. Klokishner	
<b>Oxygen Isotope Exchange between Gaseous Phase Enriched with <sup>18</sup>O Isotope and Nanocrystal Oxides LaMnO<sub>3+δ</sub> Obtained by Severe Plastic Deformation</b>	233
B.A. Gizhevskii, A.Y. Fishman, E.A. Kozlov, T.E. Kurennyykh, S.A. Petrova, I.S. Traktenberg, V.B. Vykhodets, V.B. Vykhodets and R.G. Zakharov	
<b>Mechanical Damping of the Snoek Peak in Tantalum – Oxygen System</b>	239
O. Florêncio, P.S. Silva, G.F. Barbosa, F.X. Melo, C.R. Grandini and T.T. Ishikawa	
<b>Structure of Nitrided Layer Formed on Austenitic Stainless Steel by a New Gas Nitriding Process</b>	245
H. Fujikawa and T. Watanabe	

<b>Optimization of Intermittent Hot Air Drying of Mango (<i>Mangifera Indica L.</i>)</b>	250
H.A. Váquiro, A. Mulet, J.V. García-Pérez, G. Clemente and J. Bon	
<b>Nitrogen Diffusion in the Nb-2.0wt%Ti Measured by Mechanical Spectroscopy</b>	256
C.R. Grandini, L. Monteiro da Silva, L.H. de Almeida, O. Florêncio and H.R.Z. Sandim	
<b>Nitrogen Diffusion in the Nb-1.0wt%Zr Measured by Mechanical Spectroscopy</b>	261
A.C. Souza, C.R. Grandini and O. Florêncio	
<b>Oxygen Diffusion in Superconducting Oxides</b>	266
C.R. Grandini, J.M. de Albuquerque Gimenez, M.R. da Silva and R.M. do Nascimento	
<b>Thermodynamical Behaviour of PdSe<sub>2</sub> while Subjected Isothermally to High Pressure – Volumetric Level Analysis</b>	271
V. Grigorova	
<b>Thermodynamical Behaviour of PdSe<sub>2</sub> while Subjected Isothermally to High Pressure - Axial Level Analysis</b>	277
V. Grigorova	
<b>Measurement of Aluminium Oxide-Film Thickness: Barrier Oxide Film and Oxide Porous Layer</b>	283
K. Habib, K. Al-Muhanna, F. Al-Sabti and A. Al-Arbeed	
<b>Diffusion Brazing of Single Crystalline Nickel Base Superalloys Using Boron Free Nickel Base Braze Alloys</b>	294
P. Heinz, A. Volek, R.F. Singer, M. Dinkel, F. Pyczak, M. Göken, M. Ott, E. Affeldt and A. Vossberg	
<b>Effects of Mg Additions on Surface Morphology and Corrosion Resistance of Hot-Dipped Zn Coatings</b>	300
L. Suarez, F. Leysen, C. Masquelier, D. Warichet and Y. Houbaert	
<b>Determination of Concentration Dependent Diffusion Coefficients of Carbon in Expanded Austenite</b>	306
T.S. Hummelshøj, T.L. Christiansen and M.A.J. Somers	
<b>Point Defects Characterization in Quenched δ-Ni<sub>2</sub>Si as Deduced from Isothermal Magnetic Susceptibility Measurements</b>	312
A. Jennane, O. Sassi, J. Aride, J. Bernardini and G. Moya	
<b>Growth Kinetics of Fe Boride Layers: Application of a Diffusion Model</b>	318
M. Keddam	
<b>Application of Artificial Neural Network for Prediction of Heat Treated Sintered Steels Properties</b>	323
H. Khorsand, M. Arjomandi, H. Abdoos and S.H. Sadati	
<b>Prediction of Martensite Formation Start Temperature in Steels Using Artificial Neural Networks</b>	329
M. Arjomandi, H. Khorsand, S.H. Sadati and H. Abdoos	
<b>Austenite Formation Temperature Prediction in Steels Using an Artificial Neural Network</b>	335
M. Arjomandi, S.H. Sadati, H. Khorsand and H. Abdoos	
<b>Influence of P/M Distaloy AE Steel Porosities and Nitriding Process Parameters in Diffusion and Configuration of Nitrided Layers Through Advanced Liquid Salt Bath Nitriding Process</b>	342
N. Pirayesh, M. Teimouri, H. Khorsand and M.M. Khoie	
<b>The Effect of Microstructure Heterogeneity on Fatigue Property of Powder Metallurgy Steels</b>	348
H. Abdoos, H. Khorsand, A.R. Shahani and M. Arjomandi	
<b>Influence of the Transition to Nanoscaled State on Electrochemical Properties of LaMnO<sub>3+δ</sub> Oxide</b>	354
G.A. Kozhina, A.N. Ermakov, V.B. Fetisov, A.V. Fetisov, A.Y. Fishman, S.A. Petrova, R.G. Zakharov, K.Y. Shunyaev and S.V. Rassokhin	
<b>Effect of Thermal Gradient on Solidification Microstructure in the Ni-Base Single Crystal Superalloy CMSX10</b>	361
S.H. Kim, J.M. Kim, H.J. Lee, S.D. Son, J.H. Lee, S.M. Seo and C.Y. Jo	
<b>Microstructural Analysis of Compressive Zr<sub>62</sub>Cu<sub>17</sub>Ni<sub>13</sub>Al<sub>8</sub> Bulk Amorphous Alloy</b>	367
H.Y. Liu, K.S. Shin, J.H. Yoo, J.L. Dong, Q.B. Huynh, H. Yu, C.G. Lee, Y.S. Na, K.S. Cho and J.H. Lee	
<b>Thermal Diffusivity of TiAlNb and AlNi Alloys - The European IMPRESS Project</b>	375
T. Matsushita, L. Chapman, R. Brooks, I. Egry and S. Seetharaman	

<b>Long-Range Diffusion of Hydrogen in Solid-Solution PdCe Alloys as Deduced from Absorption Experiments</b>	381
G. Mazzolai	
<b>Dominant Factor for the Occurrence of a Steam Explosion</b>	388
B.T. Min, S.W. Hong, J.H. Kim, I.K. Park and H.D. Kim	
<b>Evaluation of Transmission Conditions for Thin Reactive Heat-Conducting Interphases</b>	394
G. Mishuris, W. Miszuris and A. Öchsner	
<b>Finite Element Verification of Transmission Conditions for Thin Reactive Heat-Conducting Interphases</b>	400
A. Öchsner and W. Miszuris	
<b>Numerical Study of the Inlet Conditions Influence on Laminar Plane Wall Jets</b>	406
A. Mokni, J. Kechiche, H. Mhiri, G. Le Palec and P. Bournot	
<b>Mass Transfer Analysis during Osmotic Dehydration of Eggplant Using Binary Solutions of Sucrose and Sodium Chloride</b>	413
R. Moreira, F. Chenlo, N. Vallejo and L. Gerbet	
<b>Cross Interdiffusion Coefficients in Nickel- and Iron-Based Ternary Alloys</b>	419
Y. Murata, S. Sakurai, E. Mabruri, T. Koyama and M. Morinaga	
<b>Exploration of the Transition from Harrison Type-A Kinetics to Type-B Kinetics Regimes in Grain Boundary Diffusion</b>	425
I.V. Belova and G.E. Murch	
<b>Visualization of the Vacancy-Wind Effect Occurring in Chemical Diffusion and Ionic Conductivity in Solids</b>	431
I.V. Belova and G.E. Murch	
<b>Diffusion Kinetics Analysis of Cation Diffusion in YSZ and LSGM</b>	445
I.V. Belova, G.E. Murch, D. Samuelis and M. Martin	
<b>Theoretical Studies of Diffusion Kinetics in Austenite</b>	455
A.V. Evteev, E.V. Levchenko, I.V. Belova and G.E. Murch	
<b>Finite Element Modelling of Oxygen Diffusion and Segregation at Interfaces in Ag-MgO Composites: Parametric Studies</b>	461
A. Öchsner, I.V. Belova and G.E. Murch	
<b>Interfacial Reactions during the Dissolution of Titanium in Liquid Iron</b>	467
L. Pandelaers, F. Verhaeghe, B. Blanpain and P. Wollants	
<b>Parametric Analyses of the TROI Experimental Results by Using the TEXAS-V Code</b>	474
I.K. Park, J.H. Kim, B.T. Min, S.H. Hong, H.D. Kim and S.W. Hong	
<b>Defect-Induced Photoluminescence of Powdered Silica Glass</b>	479
P.S. Pizani, M.R. Joya, F.M. Pontes, L.P.S. Santos, M. Godinho Jr, E.R. Leite and E. Longo	
<b>Mass Transfer Kinetics in the Desulphurisation of Pig Iron with CaO and CaC<sub>2</sub></b>	485
L. Ochoterena, F. Reyes, A. Ingalls, J. Gutiérrez and G. Plascencia	
<b>Kinetic Description of the Mass Transfer in Ladle Metallurgy Operations</b>	491
V.H. Hernández, F. Reyes, J. Gutiérrez, G. Plascencia and F. Martínez	
<b>Estimation of the Rate of Hydrogen Penetration in a Welded API 5L Steel Pipe</b>	500
G. Plascencia, D. Jaramillo, F. Hernández and J.L. González	
<b>Mössbauer Spectroscopy Studies of Grain Boundaries in Nanostructured Metals</b>	506
V.V. Popov	
<b>Effect of Doping, Composite Geometry and Diffusion Annealing Schedules on the Structure of Nb<sub>3</sub>Sn Layers in Nb/Cu-Sn Wires</b>	514
E.N. Popova, V.V. Popov, E.P. Romanov, S.V. Sudareva, E.A. Dergunova, A.E. Vorobyova, S.M. Balaev and A.K. Shikov	
<b>Kinetics Parameters of Atomic Migration and Diffuse Scattering of Radiations within the F.C.C.-Ni-Al Alloys</b>	520
D.S. Leonov, T.M. Radchenko, V.A. Tatarenko and Y.A. Kunitsky	
<b>Atomic-Ordering Kinetics and Diffusivities in Ni-Fe Permalloy</b>	525
T.M. Radchenko and V.A. Tatarenko	
<b>Al-Li Surface Alloying in the Electrolytic Method</b>	531
I. Foroutan, A. Rezaei and A. Shokuhfar	
<b>Investigation of Homogenization Treatment in Al- Li- Cu- Zr Alloys</b>	536
A. Rezaei, S. Ahmadi, A. Shokuhfar and I. Foroutan	

<b>Effect of Antioxidants and Atmosphere on the Phase Formation and Microstructure of <i>In Situ</i> MgO-Al<sub>2</sub>O<sub>3</sub> Spinel</b>	542
R. Naghizadeh, H.R. Rezaie and F. Golestani Fard	
<b>Formation and Decomposition of Sol-Gel Synthesized Aluminum Titanate Nano Powders at the Presence of Fe<sub>2</sub>O<sub>3</sub> Additive</b>	549
H.R. Rezaie, M. Sobhani and R. Naghizadeh	
<b>Effect of Colloidal Silica and Nano Boehmite Mixture on Reaction Sintering, Microstructure and Physical Properties of Tialite</b>	554
G. Naderi, H.R. Rezaie, A. Shokuhfar and R. Naghizadeh	
<b>Nonclassical Properties of Molecular Diffusion in Liquids and Dense Gases</b>	560
V. Rudyak and A.A. Belkin	
<b>Nanoparticle Friction Force and Effective Viscosity of Nanosuspensions</b>	566
V. Rudyak, A.A. Belkin, E.A. Tomilina and V.V. Egorov	
<b>Diffusion of Refractory Elements in Ni—X—Y (X, Y: Co, Re, Ru, W) Ternary Alloys</b>	572
S. Sakurai, E. Mabruri, Y. Murata, T. Koyama and M. Morinaga	
<b>Diffusion-Evaporation Studies of Binary Mixtures in Capillary Tubes</b>	577
G. Duursma, K. Sefiane and J. Clarke	
<b>Chronoamperometric Determination of Diffusion Coefficients for Borohydride Anions in Sodium Hydroxide Solutions</b>	583
D.M.F. Santos and C.A.C. Sequeira	
<b>Effect of Sodium Borohydride on the Hydrogen Diffusion in MmNi<sub>3.6</sub>Mn<sub>0.4</sub>Al<sub>0.3</sub>Co<sub>0.7</sub> Hydride Electrode</b>	590
C.A.C. Sequeira, Y. Chen and D.M.F. Santos	
<b>Wagnerian Scaling Diffusion Kinetics</b>	594
C.A.C. Sequeira	
<b>On the Features of Ultramicroelectrodes</b>	602
D.M.F. Santos, R.F.M. Lobo and C.A.C. Sequeira	
<b>Isothermes of Surface and Grain Boundary Tension of Cu-Based Alloys with Sb, Sn, In</b>	608
E.I. Gershman and S. Zhevnenko	
<b>Simplification of Ensemble Averaged Two-Phase Flow with Heat and Mass Transfer Equations for Boiling in a Channel</b>	616
H.Ş. Aybar and M. Sharifpur	
<b>Microstructure Evaluation of Solid-Solution in Fe-Cu Immiscible Alloy System</b>	622
S.H.M.S. Ghassemi, A. Shokuhfar and M.R. Vaezi	
<b>Synthesis of ZnO Nanoparticles via Sol-Gel Process Using Triethanolamine as a Novel Surfactant</b>	626
A. Shokuhfar, J. Samei, A. Esmaielzadeh Kandjani and M.R. Vaezi	
<b>MnO-C Interaction – Thermodynamic Modelling of Phase Equilibria</b>	632
A.B. Shubin and K.Y. Shunyaev	
<b>Ternary Interdiffusion in L1<sub>2</sub>-Ni<sub>3</sub>Al with Ir Alloying Addition</b>	637
M. Ode, N. Garimella, M. Ikeda, H. Murakami and Y.H. Sohn	
<b>Evaluation of the Coverage Pattern on the Fracture Surface of Bi-Embrittled Cu Grain Boundaries by Means of Auger Electron Spectroscopy</b>	643
C.H. Yeh, L.S. Chang and B.B. Straumal	
<b>The Influence of Quenching Baths on Grain Boundary Wetting Transition in Sn–25 at% In alloy</b>	649
C.H. Yeh, L.S. Chang and B.B. Straumal	
<b>Effect of Si on High-Temperature Oxidation of Steel during Hot Rolling</b>	655
L. Suarez, J. Schneider and Y. Houbaert	
<b>High-Temperature Oxidation of Fe- Si Alloys in the Temperature Range 900-1250°C</b>	661
L. Suarez, J. Schneider and Y. Houbaert	
<b>Diffusion of <sup>8</sup>Li Short-Lived Radiotracer in Li Ionic Conductors of NaTl-Type Intermetallic Compounds</b>	667
H. Sugai, M. Sataka, S. Okayasu, S.I. Ichikawa, K. Nishio, S. Mitsuoka, T. Nakanoya, A. Osa, T. Sato, T. Hashimoto, S.C. Jeong, I. Katayama, H. Kawakami, Y. Watanabe, H. Ishiyama, N. Imai, Y. Hirayama, H. Miyatake, T. Hashimoto and M. Yahagi	
<b>Thermal-Mechanical Responses of Ti-6Al-4V during Orthogonal Cutting Process</b>	673
M.N. Tamin, S. Izman and T.T. Mon	

<b>Mass Transfer Coefficients during Steel Decarburization in a RH Degasser</b>	679
R.P. Tavares, A.A. Nascimento and H.L.V. Pujatti	
<b>Effect of the SiO<sub>2</sub>/Si Interface on Self-Diffusion in SiO<sub>2</sub> Upon Oxidation</b>	685
M. Uematsu, K. Ibano and K.M. Itoh	
<b>Modelling of Stable Fission Gases Diffusion in UO<sub>2</sub> Nuclear Fuel</b>	693
I. Vallejo and L.E. Herranz	
<b>Computational Study of Heat Transfer in Honeycomb Structures Accounting for Gaseous Pore Filler</b>	699
M. Vesenjak, Z. Žunič, Z. Ren and A. Öchsner	
<b>Study of Distribution of Impurity Atoms in Metallurgical Macrodefects</b>	707
V.B. Vykhodets, T.E. Kurennyykh and N.U. Tarenkova	
<b>Evolution of the Enriched Layer at the Oxide/Metal Interface during Oxidation of Recycled Steels with Copper and Copper+Nickel Residuals</b>	713
B.A. Webler and S. Sridhar	
<b>The Influence of Deep Cryogenic Treatment after Supersaturation of Al 4.7% Cu Alloy on Transformation during Ageing. Studies of Dilatometry, DSC, Hardness and XRD</b>	724
I. Wierszyłowski, S. Wieczorek, E. Andrzejewska and A. Marcinkowska	
<b>The Influence of Deep Cryogenic Treatment on Transformation during Tempering of Quenched D2 Steel. Studies oF XRD, Structures, DSC, Dilatometry, Hardness and Impact Energy</b>	731
I. Wierszyłowski, J. Samolczyk, S. Wieczorek, E. Andrzejewska and A. Marcinkowska	
<b>Coupled FEM-BEM Approach for Axisymmetrical Heat Transfer Problems</b>	740
G. Mishuris and M. Wróbel	
<b>Diffusion of Refractory Elements in Ternary Iron Alloys</b>	746
K. Yamashita, T. Kunieda, K. Takeda, Y. Murata, T. Koyama and M. Morinaga	
<b>Investigation of Sulfur Transition through Metal-Slag Phase Boundary in Natural Moving Conditions</b>	752
M. Radune, A. Radune, F. Assous, M. Zinigrad and D. Eliezer	

## Special Session: Heat and Mass Transfer in Porous Media

<b>Diffusion of Water in Chestnut Fruits during Drying and Rehydration Processes at Different Temperatures</b>	758
R. Moreira, F. Chenlo, L. Chaguri and C. Fernandes	
<b>Drying of a Low Porosity Product (Carrot) as Affected by Power Ultrasound</b>	764
J.V. García-Pérez, J.A. Cárcel, J. Benedito, E. Riera and A. Mulet	
<b>Reduction of Solids in Leachate Streams by Membrane Bioreactors: Mass Transfer Topics and Fouling Problems</b>	770
T. Castelo-Grande, P.A. Augusto, P. Monteiro and D. Barbosa	
<b>Comparison between Maxwell-Stefan and Nernst-Planck Equations to Describe Ion Exchange in Microporous Materials</b>	776
P.F. Lito and C.M. Silva	
<b>Numerical Modelling of the Heat and Mass Transfer in a Channel with Hygroscopic Walls</b>	782
C.R. Ruivo, J.J. Costa and A.R. Figueiredo	
<b>A New Approach to Measure Diffusion Coefficients at Different Temperatures – A Simple Experiment</b>	789
J.M.P.Q. Delgado	
<b>Experimental Study of Free Convection from a Vertical Flat Plate in Porous Media</b>	796
L.B.Y. Aldabbagh, M. Sharifpur and M. Zamani	
<b>Liquid Chromatographic Method for Quantifying Atrazine Extracted by Supercritical Extraction</b>	802
T. Castelo-Grande, P.A. Augusto and D. Barbosa	
<b>Heat and Mass Transfer Porous Medium Saturated with Compressible Fluid with Boundary Domain Integral Method</b>	808
J. Kramer, R. Jecl and L. Škerget	
<b>Development of Porous Ceramics for Gas Burners</b>	814
S.M.H. Olhero, J.M.P.Q. Delgado, J.M.F. Ferreira and C. Pinho	

