

Table of Contents

Preface, Technological Committees and Sponsors

Chapter 1: Nanomaterials and Nanotechnologies

Application of the Nanostructured Carbon Coatings for Improvement of Functional Properties of Medical Polyurethanes	
L. Belyaev, A.V. Zhdanov and V.V. Morozov	3
The Dispersion of MWCNTS in Acetone Solution of SAN	
X.L. Ling, L.J. Xie, L.M. Zou and Y.Z. Wei	8
Removal of Paraquat from Aqueous Solutions Using Multi-Walled Carbon Nanotubes: Kinetic, Isotherm and Thermodynamic Studies	
H. Hao, J.G. Feng, W.J. Liu and X.M. Wu	13
Effect of Nanostructured Oxide Coatings on Tensile Properties of Cast Pure Magnesium	
J. Hu and X.Y. Nie	18
Multifunctional NaYF₄:Yb³⁺, Er³⁺@Au Nanocomposites: Upconversion Luminescence, Temperature Sensing and Photothermal Therapy	
D.D. Li, Q.Y. Shao, Y. Dong and J.Q. Jiang	23
Comparative Studies for the PAMAM/RE and HPAE/RE (RE=La, Nd, and Eu) Based on Molecular Dynamics Simulations	
S.Q. Li, Y.Z. Liu, L.L. Lv and Y.C. Zhu	28
Facile Synthesis and Photocatalytic Properties of Mini Nanoparticle CdS Quantum Dots/Boron and Nitrogen Co-Doped TiO₂ Transparent Photocatalyst Emulsion	
H.Y. Wei, H.Y. Zhang, W.M. Zhang, S.M. Wang, J.Y. Xiao, T. Cui, Y.P. Bai, H.S. Niu, T.T. Li and X.W. Li	33
Nanomagnetic Particle Anchored to Monodispers Porous Microspheres for Pectinase Immobilization	
S.X. Bi and X.L. Zhang	38
Effect of Noble Metal Nanoparticles in SERRS Measurements of Water-Soluble Porphyrins	
P. Andrýsková, K.M. Šíšková, A. Fargašová and R. Zbořil	43
In Situ TEM Manipulation and Property Study of Cd₂Ge₂O₃ Nanowires	
Q. Liu and J.Q. Hu	48
Structures and Performances of PA6/PVA Nanofibers Membranes from Electrospinning	
Y. Xu, B. Gao and B.Q. Zuo	52
A Simple Solvothermal Synthesis of Spherical Y₂O₃:Eu³⁺	
M. Lv, G.C. Li, J. Dai and X. Li	58
Antibacterial Potential of Silver Nanoparticles Capped with Poly(4-styrenesulfonic acid-co-maleic acid) Polymer	
H. Tamayakul, S. Tanasupawat, S.T. Dubas and W. Warisnoicharoen	64

Chapter 2: Thin Films

Synthesis, Characterization and Thermal Properties of SiO₂/Pi Composite Film	
Y.H. Ding, Z.L. Hu and F.S. Liu	71
Fabrication and Characterization of Al/Ni Multilayer Films	
T. Ma, Q.X. Zeng, M.Y. Li and T. Wang	76
SiO₂ZrO₂ Thin Films as Low Temperature NO₂ and O₃ Sensors	
T.N. Myasoedova, V.V. Petrov, N.K. Plugotarenko, D.V. Sergeenko, G.E. Yalovega, M.M. Brzhezinskaya and E.N. Shishlyanikova	81
Preparation and Characterization of Cd_{1-x}Zn_xS Thin Films with Chemical Bath Deposition	
L.M. Zhou, Y.L. Li and Y.J. Dong	86
Synthesis and Characterization of Au-CdS Composite Thin Films for Photoelectrochemical Sensing of Hg²⁺ Ions	
P. Li, S. Huang and H.C. Pan	91

Highly Transparent Flexible Clay Film with Organized Polymer	96
X.B. Deng, H. Xu, L.P. Zhang, Y. Zhong and Z.P. Mao	
Study on Preparation and Surface Properties of Fluorinated Acrylate Hydrophobic Polymer Film	101
J. Chen, Q. Cheng and S.Q. Chen	
Effect of Thermal Annealing on La₂O₃ Films Grown by Plasma Enhanced Atomic Layer Deposition	107
J.S. Liu, F.F. Zhu, F. Lu and L. Zhang	

Chapter 3: Metal-Based Materials, Alloys and Metallurgical Technology

Effect of Oxygen Content in Powders on Microstructure and Mechanical Properties of WC-FeAl Composites Fabricated by Vacuum Sintering Technique	115
R. Furushima, K. Katou, K. Shimojima, H. Hosokawa and A. Matsumoto	
Influence of Chlorine Additives on Combustion Rate of Pulverized Coal Injection	120
B. Wu, S.H. Zhang, X.J. Liu, Y.N. Qie and Q. Lv	
Friction Stir Processing of Cast Iron Using Cermet Tool	124
Y. Mizutani and H. Hosokawa	
Welding-Brazing Characteristic in Electron Beam Joining Vanadium Alloy and Stainless Steel	130
Y.R. Wang, Y. Yu and W.C. Zhang	
Improvement of Wet Milled TiC-Feal Alloys	135
K. Shimojima, H. Hosokawa, R. Furushima, K. Katou and A. Matsumoto	
Application of Orthogonal Experiments Design to Optimize Process Parameters in the Alloy Heat Treatment	140
S.Y. Zhou, W.L. Xie, C.X. Guo and Y.H. Wen	
Study on Clinching for Similar and Dissimilar Titanium Alloy	144
Y.F. Ding, X.C. He and L. Zhao	
The Effect of Enhanced Solution Treatment on Microstructures and Properties of 6013 Type Aluminum Alloy	148
F.B. Zhang, T.M. Tang, Y.F. Zhao, X.J. Xu, Z.L. Ju and G.R. Hua	
Heat Transfer and Solidification Model of Slab Continuous Casting Based on Nail-Shooting Experiments	153
A.G. Hou, Y. Min, C.J. Liu and M.F. Jiang	
The Influence of Calcium Additive in the Structural Formation of Tungsten via Reduction Reaction	159
X. Yang, D.Q. Tan, Y.L. Li, W. He, H.B. Zhu, L. Lu and D.P. Lu	
High-Temperature Corrosion of Carbon Steel in Air, Ar/0.2%SO₂, and N₂/0.4%H₂S Gases	164
M.A. Abro and D.B. Lee	
Environmental Effects on Electrochemical Behaviors of Materials of a Dissimilar Metal Weld Exposed to High Temperature Primary Water of PWR Nuclear Power Plants	169
G.F. Li, K.W. Fang and J. Xu	
Research on Microstructure and Properties in Welded Joint of 700 MPa Grade Low Carbon Micro-Alloy Steel	174
J.F. Gu, Y. Xiao, K.J. Zhou, D.D. Dai and Q.D. Zhong	
Tensile Properties of Squeeze Cast Mg-Al-Sr Alloy under Applied Pressures	181
L. Fang, H. Hu and S.P. Wang	
Hot Deformation Behavior of Q235 Steel during Isothermal Compression at Elevated Temperature	186
B. Yang, Z. Zheng, L.X. Wang and Y.G. Wu	
Effect of Holding Time on Microstructures of AZ91D Alloy by the Semi-Solid Thixo-Extruded Process	191
X.P. Zheng, Z.S. Ji, W.W. Zhang and M. Shao	
XRD, STEM, and Tensile Properties of AISI S1 Tool Steel after Deep Cryogenic Treatment	195
S.E. Vahdat and K.S. Niaki	
Research on the Morphological of Lead and Zinc in the Smelting Slag	200
L. Yu and D.W. Li	

Cold Crystallization Behaviour of a Commercial Zr44-Ti11-Cu10-Ni10-Be25 Metal Glassy Alloy	206
R. Aversa, F. Tamburrino, D. Parcesepe and A. Apicella	
Lab Scale Synthesis of Al-Sc Alloys in NaF-AlF₃-Al₂O₃-Sc₂O₃ Melt	213
Y. Zaikov, O. Tkacheva, A. Suzdaltshev, A. Kataev, Y. Shtefanyuk, V. Pingin and D. Vinogradov	
The Microstructure Evolution of a Nickel-Base Single Crystal Superalloy after Long-Term Aging	217
Y.X. Jia	
Microstructure and Mechanical Properties of As-Cast and As-Extruded Mg-Gd-Er-Zn-Zr Alloy	221
K. Wen, W.B. Du, K. Liu, Z.H. Wang and S.B. Li	
The Compressive Behaviors of the Mg-Zn-Er Alloy Containing I-Phase	227
K. Liu, W.B. Du, Z.H. Wang and S.B. Li	
Grain Refinement of High-Iron Aluminum Alloy by Inoculation with Al-B Master Alloy	233
Y.F. Wang, C.D. Li, M. Zhao, D. Chen, X.D. Zhao, W.Q. Si, Z.M. Lin, Y.H. Yu, Y.M. Liu and Q.Y. Qu	
Interfacial Energy Anisotropy Affecting Dendrite Growth of Magnesium Alloy	238
X.F. Yuan and Y. Yang	
A New Al-ZnS Master Alloy Designed for Modifying Hypereutectic Al-Si Alloy and its Refinement Performance on Primary Si	242
C.D. Li, W.Q. Si, M. Zhao, C.H. Sun and X.S. Guo	
Creation of Submicroporous and Nanoporous Structures in Metallic Materials by Laser Thermocycling as Eutectic Is Reached	245
S.P. Murzin, A.A. Igolkin and L.F. Musaakhunova	
Electrolytic Aluminizing of Low-Carbon Steel in NaF-KF-AlF₃ Melt	250
Y.P. Zaikov, V.A. Kovrov, I. Brodova, Y. Shtefanyuk, V. Pingin and D. Vinogradov	
Fracture Toughness and Hardness of Ti(C_{0.7}N_{0.3})-19Mo₂C-xNbC-24Ni	255
H. Hosokawa, K. Katou, K. Shimojima, R. Furushima and A. Matsumoto	
Influence of Solid-Liquid Composite Casting on Interface and Microstructure of High Chromium Cast Iron	260
X.L. Li, X.J. Zhou, W.L. Xie and Y.P. Ma	
The Effect of Forming Speed on the Formability of a Zr-Based Bulk Metallic Glass	265
W. Xiao, J.J. Li, Z.Z. Zheng and J.Y. Li	

Chapter 4: Crystallography, Chemical and Cathode Materials

Development and Application of Manganese Cobalt Lithium Compounds in the Field of Lithium Batteries	275
Y. Tang, Z.L. Zhan, X.H. Yu, M. Ma and X.Y. Li	
Bi-(2, 4-dihydro-2H-3-(4-N-maleimido) phenyl-1,3-benzoxazine) Isopropane: Molecular Structure, Optical Spectrum and Thermodynamic Properties	279
Y.H. Guan, Z.R. Chen and Y.H. Xu	
Preparation of HA Hydrogel by Click Chemistry	286
Y. Cui, J.P. Zhang, W. Zhang and Q. Duan	
Synthesis and Properties of Functionalized Sulfur-Containing Hexa-Peri-Hexabenzocoronene	290
Y. Wang, W.G. Wang, R. Cheng and J.L. Pu	
Morphology of Cobalt Oxalate Powders Prepared with Pulsed Electromagnetic Field	295
S.J. Peng, H.L. Du and L.D. Tang	
Synthesis of Spherical and Fine Cobalt Powders from Cobalt Oxalate	300
S.J. Peng, H.L. Du and B. Wang	
Synthesis, Crystal Structure and Characterizations of a Novel Open-Framework Lanthanide Imidazoledicarboxylate	305
H.D. Li	
Hydrothermal Synthesis and Structure Characterization of Two Hybrid Metal Phosphonates Materials	309
C.F. Sun, Y.Y. Pang, Y. Zhao and Y. Yang	

Hexacarboxylate-Bridged Dicopper (II) Paddle-Wheel-Based 3-D Metal-Organic Framework: Synthesis, Structure C.F. Sun, Y.Y. Pang, Y. Zhao and Y. Yang	314
Study on Pyrolysis Behavior of Polybenzoxazine by PyGC-MS D.L. Lin	318
Substituent Group Effete on the Geometric Configurations of the Acyclic Ruthenium Bipyridine Imidazole-Cyanide Anion Recognition Systems S.Q. Li, Y.Z. Liu, Y.C. Zhu and L.L. Lv	322
Co-Effect of AlF₃ and MgF₂ Coating on the Electrochemical Performance of LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂ Cathode Material under High Voltage F.F. Zhao, D.B. Mu, X.X. Hou, L. Wang, Y.H. Ren and B.R. Wu	327
Novel Sorbents and their Sorptive Properties for Mercury Emissions Control of Coal-Fired Flue Gas N. Huang, Y.B. Zhu and D.J. Meng	332
V₁₀O₂₈⁻⁶ Cluster Compound, a Promising Cathode Material for Li Ion Battery A.L. Xie, L.B. Wang, Y.Q. Chu and C.A. Ma	337
Thermal Oxidative Degradation Behavior of Fluorinated Thermotropic Liquid Crystal Copolyesters P. Wei, S.H. Huang, Y.P. Wang and Y.M. Wang	343
Studies of Reaction Kinetics of Catalytic Hydrogenation of Isophthalonitrile for Meta-Xylenediamine Preparation Y.G. Li and L.Q. Kong	348
Optimization of the Coagulation Process for Kaolin and Humic Acid Removal Using Polymeric Aluminum Ferric Sulfate Z.Z. Jiang, Y. Chen and J.R. Zhu	353
Mono-Component-Solution Controlled Growth of Microarc Oxidation Coatings on Aluminum Substrates M. Fu, J.M. Li and H. Cai	358
Simple, Efficient, and Selective Synthesis of Phthaloylserine and Phthaloylthreonine Y.T. Liu, S.M. Song, D.W. Yin and D. Chen	363
Solvent-Free Green Synthesis of 4-amino-5-substituted-1,2,4-triazole-3-thione by Grinding Y.T. Liu, S.M. Song and D.W. Yin	367
Study on Different Synthesis Methods of Spherical YAG:Ce³⁺ Phosphor and its Luminescence Properties X. Zhang, C.X. Yan and R.F. Guan	371
Ce-Doped ZnO Based Fast Response UV Photoconductive Detector H.D. Zhang, X.W. Sai, X.L. Cheng, F. Cheng, L. Wang, Y.Z. Long and Y.C. Liu	377
Surfactant-Based Fluorescent Quantum Carbon Dots: Synthesis and Application S. Štěpánková, O. Kozák and R. Zbořil	381
The Interactions with Proton-Donor Solvents and Stability of some Borondipyrinates R.T. Kuznetsova, Y.V. Aksanova, G.V. Mayer and E.V. Antina	386
Receiving and Research of Diamond-Like PVD-Coating D.M. Kononov, A.V. Zhdanov and V.V. Morozov	391
Quality Technological Properties of Foundry Exhaust Dust as Alternative Ceramic Coating Raw Materials L.O.V. dalla Valentina, M.V. Folgueras, W.R. Knop, M.C.P. do Nascimento and G.A. Prates	395

Chapter 5: Polymers and Composite Materials

Investigation of the Elastic Modulus Effect on Free Vibration Characteristics of Fiber Reinforced Polymer Composite Beams Made of Various Fundamental Shapes L.R. Swamy, C. Sentharamaikannan and R. Ramesh	401
Evaluation of a Plastic Composite Produced with Residues of Sugarcane Bagasse and Polypropylene without Additives R.A.G. Battistelle, B.S. Bezerra, I.D. Valarelli, L.A.M.N. Branco, E. Chahud, A.L. Christoforo and F.A. Rocco Lahr	407

Influence of Portland Cement Addition in the Physical and Mechanical Properties of Epoxy Resin F.A.Z. Marques, C.E.G. da Silva, A.L. Christoforo, F.A. Rocco Lahr, T. Hallak Panzera and R.B. Canto	411
Resin-Wood Particulate Composite Reinforced with Piassava Fibre A.L. Christoforo, F.A. Rocco Lahr, C.I. de Campos, E.A. Martines Morales, J.C. Barbosa and T. Hallak Panzera	415
Structure and Properties of Melamine Formaldehyde/Polyvinyl Alcohol (MF-PVA) Composite Fiber by Electrospinning L.L. Li, Y.Q. Kang, Y.G. Yang, R.M. Cong and Z. Jia	419
Study on Melamine Formaldehyde/Polyvinyl Alcohol Blend Fiber by Electrospinning L.L. Li, Y.Q. Kang, Y.G. Yang, R.M. Cong and Z. Jia	424
Silicon Electrodeposition on Glassy Carbon, Silver, and Tungsten Substrates S.I. Zhuk, L.M. Minchenko, O.V. Chemezov, V.B. Malkov, O.V. Grishenkova, V.A. Isaev, Y.P. Zaikov and S. Qi	429
Synthesis of Polypropylene Strong Acid Cationic Exchange Fiber W. Chen	434
Study on the Phenolic - Epoxy Resin System Y.L. Peng and L. Zeng	439
The Performance Study of Waterborne Damping Coating X. Wang, P.M. Hou, Y.H. Xu and J. Lei	444
Preparation and Characterization of Modified Polylactic Acid-co-Polyethylene Glycol-co-Polylactic Acid Microcapsules Enclosing Cypermethrin Y. Xu, W.T. Chen, T.F. Fan, X.M. Wu and H.X. Gao	449
Study on Environmental-Friendly Waterborne Polyurethane Flame-Retardant Coating Polyester Fabric W. Du and R. Wang	455
Study on the Modification of Waterborne Polyurethane by Tung Oil Anhydride-Ester Polyol J.H. Zhou, J. Yang, W.J. Ma, N. Li and H.Z. Sun	460
Modification of Unsaturated Polyester Resin by Methyl-α-Eleostearate-Maleic Anhydride Adduct J.H. Zhou, N. Li, W.J. Ma, J. Yang and H.Z. Sun	467
Hyperbranched Triazine Compounds Grafted Carbon Nanotubes for Improved Tribological Performance of Bismaleimides Composites Y.H. Nie, H.X. Yan and T.T. Li	472

Chapter 6: Biomaterials and Biotechnologies

Effect of Nanocrystallized Hydroxyapatite Coating on Bone Healing Evaluated by Synchrotron Radiation Diffraction A. Benmarouane, H. Citterio, P. Millet, T. Buslaps, A. Lodini and V. Honkimäki	481
New Biomimetic Hybrid Nanocomposites for early Fixation Prostheses R. Aversa, R. Sorrentino and A. Apicella	487
Synthesis and Photophysical Property of Polyion Complex Micelle Incorporating Phthalocyanine Zinc(II) Bearing Benzyl Ether Dendritic Substituents with Nitro-Terminal Group X.D. Zhu, Z.Z. Chen, K.Q. Wu, J.R. Wen, X.W. Wang and Y.R. Peng	495
The Study of the Effect of Concentrated Growth Factors (CGF) on the New Bone Regeneration of Immediate Implant L.M. Yang, Z.Z. Liu, S.P. Chen, C. Xie and B. Wu	500
Fermentation Production of Succinic Acid from Sucrose by Engineered Escherichia Coli JH208 C.D. Lu, Y.Y. Xiong, J.F. Zhao and J.H. Wang	503
Synthetic Small Molecules Targeting G-Quadruplexes and their Application H. Yu, Y.L. Wang, X.Y. Zhao and W. Zhang	507
Effect of Bone Composition on the Fracture Toughness of Cortical Bone C.S. Wu, F.T. Chiang and J.P. Hung	514

Color Stability of Heat-Cured Denture Base Resins H.L. Huang, D. Feng, H.H. Gong, A.Y. Song and S. Zhu	519
Formulation and Technology Study on the Taste Masking Granules Y.Q. Zhang, Q. Gao, W. Luo, M. Zou, W.F. Yuan and Z.Y. Mi	526

Chapter 7: Materials and Technologies in Environmental Engineering

Adsorption of 2,4-Dichlorophenol and Rhodamine-B from Aqueous Solutions onto Activated Carbon Derived from Phragmites Australis S.H. Chen, J. Zhang, Z.J. Han, C.L. Zhang and Q.Y. Yue	533
Hydrothermally Synthesized Magnetically Separable RGO Supported Nanocomposite for Water Purification M.K. Joshi, H.R. Pant, H.J. Kim, N.N. Liao, J.H. Kim, B.K. Shrestha, C.H. Park and C.S. Kim	540
Researching on a New Grouting Material and its Engineering Application J.L. Dou, J.F. Dou and Y.J. Guo	544
Study of Combustion of Different Biomass and its Atmospheric Emissions J.E.F. Cieslinski, M.A.M. Costa, J.A. Carvalho and S.S. Amaral	549
Approaching Capacitive Deionization (CDI) on Desalination of Water and Wastewater - New Progress and its Potential L. Wang, Y. Zhou, J. Wang and N. Hu	557
The Evaluation of the Concentration of Benzo[a]Pyrene in the Air of Moravian-Silesian Region (Czech Republic) during Winter and Summer Seasons B. Sykorova, M. Kucbel, H. Raclavska and K. Raclavsky	562
Cu-Supported on Sodium-Treated Sepiolite for Selective Catalytic Reduction of NO by Propylene Z.H. Zhang, Y. Li, Y.F. Qi, Q. Ye, S.L. Ji and D. Wang	569
Advances in Wastewater Treatment of Waste Metal Cutting Fluid Y.Z. Li, H.Z. Shan and T.Y. Li	573
Speciation Analysis of Antimony and Arsenic in Soil and Remediation of Antimony and Arsenic in Contaminated Soils S.T. Zhao, H.C. Li and Y.H. Shi	578
Selected Physical and Mechanical Properties of 2-Ply Bamboo Laminated Lumber with Modified Phenol Formaldehyde Z.W. Huang and M.J. Guan	583
The Influence of Different Carbon Sources for Polyhydroxyalkanoates Storage Y.P. Zhang	587
An Experimental Study on Ammonia-Nitrogen Removal from Waste Water with Modified Absorbent L.P. Xiao, X.H. Geng and G. Pei	591

Chapter 8: Building Materials and Technologies

Evaluation of the Tensile Modulus of Elasticity in Parallel Direction to the Grain for <i>Eucalyptus grandis</i> Wood Specie A.L. Christoforo, F.A. Rocco Lahr, I.D. Valarelli, R.A.G. Battistelle, L.A.M.N. Branco, E. Chahud and T. Hallak Panzera	599
Experimental Research on Alkaline Residue Concrete Dry Shrinkage Performance Y. Zhang and J. Cao	603
Influence of Fly Ash on Microstructure of Complex Binder Pastes X. Li, J.J. Yan and H.Q. Yang	608
Experimental Study on Effects of Mechanical Properties of Lytag Concrete L.C. Zhang and A.L. Zhang	613
Apply for RC Beams and Slabs Strengthened with New Inorganic Adhesives Sticked FRP Sheets A.L. Zhang	617
Basic Mechanical Properties Research of SAE Latex-Modified Mortar W. Meng	621

The Research of the River Silt as Road Subgrade Filling Materials in Big City F.Y. Bai, H.Y. Song, L. Cao and B.W. Zhang	626
Anatomical Description of Guanandi Wood, from Pure Plantation, and its Use as Building Material R.M. Barreiros, S.S. Amaral, C.A.O. de Matos and A.S. Costa	635
Influence of Time Evolution in the Modulus of Elasticity of Concrete Reinforced by Carbon Fibers L. Couto Aguiar, L.A.M.N. Branco, E. Chahud, F.A. Rocco Lahr, A.L. Christoforo, R.A.G. Battistelle and T. Hallak Panzera	640
Particleboard Manufactured with Variation of Press Time C.I. de Campos, B.S. Ferreira, A.L. Christoforo, F.A. Rocco Lahr, J.C. Barbosa, E.A.M. Morales and F. Oliveira Lima	644
Influence of the Addition of Coffee Husk in Physical Properties of Bamboo Particleboard I.I. de Araújo, F.C. Rossetto Dinhane, I. de Domenico Valarelli, M.A. Pereira Bueno, B.S. Ferreira and C.I. de Campos	648
Physical and Mechanical Characteristic of Particleboards Produced with Residues of Sugarcane and Stem Leaves of Bamboo Bonded with Castor Oil Adhesive B.S. Bezerra, I.D. Valarelli, R.A.G. Battistelle, A. de Lima Zuim, L.A.M.N. Branco, E. Chahud, A.L. Christoforo and F.A. Rocco Lahr	652
Characterization of Medium Density Particleboards Using Agricultural Residues I.D. Valarelli, R.A.G. Battistelle, B.S. Bezerra, L.A.M.N. Branco, E. Chahud, A.L. Christoforo and F.A. Rocco Lahr	656
Post-Fire Study of Strength and Stiffness of a Wooden Roof Structure E.A.M. Morales, D. Soares Galdino, J. Cortez-Barbosa, C.I. de Campos, V.A. de Araujo, F.A. Rocco Lahr, A.L. Christoforo and S.A.M. da Silva	660
Effect of Drying Methods in the Resistance Strength Compression Parallel Test for Bamboo A.K. Arantes, C. de Conti, S.M.E. Sturaro and A.C. de Conti	664
Influence of the Number of Load Cycles to Obtain the Stiffness Properties of Angico Preto (<i>Anadenanthera macrocarpa</i>) Wood Specie E. Chahud, L.A.M.N. Branco, F.A. Rocco Lahr, A.L. Christoforo, R.A.G. Battistelle and I.D. Valarelli	669
Particleboard Manufactured with Bamboo and Coconut Fibers in Different Ratios of Adhesive F.C.R. Dinhane, I.I. de Araújo, I.d.D. Valarelli, M.A.P. Bueno, B.S. Ferreira and C.I. de Campos	672
Evaluation of the Moisture Content in Stiffness Properties of Structural Glulam Beams F.A. Rocco Lahr, A.L. Christoforo, C.I. de Campos, E.A.M. Morales, J.C. Barbosa and T. Hallak Panzera	676
Moisture Content and its Influence on the Roughness and Noise Emission during Wood Machining C. Pinheiro, M.C. de Sampaio Alves and S. Simões Amaral	680
MDP Panels Manufactured with Hevea Brasiliensis Overlaid with Bamboo Foil of <i>Phyllostachys Edulis</i> S.D. Muzel, M. Gava, J. Cortez-Barbosa, K.A. de Oliveira, E.A.M. Morales and V.A. de Araujo	686
Poisson's Ratios for Wood Species for Structural Purposes F.A. Rocco Lahr, A.L. Christoforo, E. Chahud, L.A.M.N. Branco, R.A.G. Battistelle and I.D. Valarelli	690

Chapter 9: Research in Area of Applied Materials

Analysis on Causes of Corrosion in the Sleeve Joint of Certain Offshore Pipeline System H. Wang and X.H. Liu	697
Ion Plating Plasma Assisted SiO₂ and TiO₂ Protective Nano-Coatings for Antique Ceramics Preservation R. Aversa, V. Perrotta, C. Misiano and A. Apicella	701
Study on Influence to the Ceramic Glaze Color of Environmental-Friendly Pottery Brick by Low-Carbon Catalytic Combustion Furnace of Natural Gas T.Q. Ren, K. Fang and S.H. Zhang	706

Influence of CrCN Coatings Steel Ball Deposited by Closed Field Unbalanced Magnetron Sputtering on the Performance of Bearing

G.X. Jia, J.D. Chang, X.L. Sun and Y.P. Chang

711

Structural Optimization of Laminated Glass Plate Using Discrete Element Method

S. Sakai, K. Maenaka and K. Yamazaki

716

Study on Carbocoal as Microwave Absorber in Microwave Field

S. Liu, M.X. Zhang and H. Xia

721

Chapter 10: Processing Technologies and Computational Methods in Area of Materials Science

Effects of Extrusion Speed on the Deformation of Copper Using ECAP Based on FEM

C.L. Wu, Z.R. Wang and W. Zhang

729

Research on Performance of Drilling Carbon Fiber Reinforced Plastics with Diamond Coated Special Drill

X.F. Yang, Y.S. Li, Z.L. Xu, J.D. Liu and B.J. Wu

733

Thermal Simulation Study on Copper Cooling Stave of Blast Furnace

Y. Zhong, X.Z. Lu, X.M. Fan and C. Lei

739

The Process Optimization of Cast Copper Stave Based on ProCAST

X.Z. Lu, X.W. Wan, X.M. Fan and Z. Wang

744

Effect of Surface Roughness on the Shear and Tensile Strength of Hardwood Adhesive Joints: A Linear Elastic Model

A.C. de Conti and C. de Conti

750

Shear Stress Discontinuities in Adhesive Joints

X.C. He

758

Comparisons of Linear and Nonlinear FEA of Adhesively Bonded Beams

X.C. He

763

Effect of Adhesive Behavior on Normal Stress Distributions in the Single-Lap Adhesive Joints

X.C. He

769

Research Concerning the Influence of Contact Tip-to-Work Distance (CTWD) on Penetration, Bead Height, Bead Width - Study Case GMAW Cladding

D.T. Cicic, C. Rontescu, C.G. Amza and A. Semenescu

774

Experimental Study on the Surface Cutting Mechanical Properties of Single Crystal Silicon in Micro-Nano Scale

X.J. Yang, Y. Li and W.X. Zhang

779

Effect of Parapet Hole on Tundish Flow Field

T.F. Ma, H.X. Li, X.F. Wang and G.Q. Liu

783

Effect of Turbulence Inhibitor on the Molten Steel Flow in Tundish

T.F. Ma, H.X. Li, X.F. Wang and G.Q. Liu

788

Energy Saving for Distillation Process of Mixture with Wide-Boiling Range via T-Q Graph

Y.G. Li and S.Q. Zheng

792

The Influence of the Welding Current Polarity on the Geometric Configuration of the Bead

C. Rontescu, D.T. Cicic, G. Iacobescu and G.C. Amza

797

Simulation of Drying *Hevea brasiliensis* Wood

C. de Conti, A.C. de Conti, M. Gava, L.O.V. dalla Valentina and G.A. Prates

802

The Influence of Welding Parameters on Heat Transfer Efficiency of Hybrid Pulsed Nd: YAG/GTAW Welding

M.X. Xie and L.J. Zhang

807

Using Methods of Multi Scale Modeling for Investigation of Sample Defects

A. Dubinets, E.V. Pustovalov, E.B. Modin, A.N. Fedorets and V.S. Plotnikov

814

A Study on Image Processing Algorithms for Seam Tracking System in GMA Welding

M.H. Park, Q.Q. Wu, C.K. Park, J.P. Lee and I.S. Kim

819

A Study on Modified Hough Algorithm for Image Processing in Weld Seam Tracking System

J.P. Lee, Q.Q. Wu, M.H. Park, C.K. Park and I.S. Kim

824

Affect of Casing Eccentricity on Stress at the Cement Ring Interface

J.F. Zhang, B. Wang, D.B. Zhang and X. Wang

829

Simulation of Temperature Field in the Solidification Process of Cast	
X.F. Yuan, R.X. Hu, Y. Li, Y. Zhou, L. Li and L. Wei	834
Analysis of Sectional Girder Flexion Calculate of Tapered Canal Bi-Material	
L.N. Chen, Z. Li and L.Q. Qin	838
Study on the Promotion Effect of Microwave-Metal Discharge on the Microwave Pyrolysis of Electronic Waste	
J. Sun, W.L. Wang, C.Y. Ma and Q.Y. Yue	843
Nonlinear Dynamic Finite Element Programming Design of Different Material Model	
H. Ding and L. Song	848
Deformation Behavior Analysis of Harmonic Structure Materials by Multi-Scale Finite Element Analysis	
H. Yu, I. Watanabe and K. Ameyama	853
Finite Element Analysis of Anchorage Structure for FRP Tendon	
S.Q. Li, B. Chen and G.H. Xie	858