

Table of Contents

Committees

Preface

Tensile Tests of Glass Powder Reinforced Epoxy Composites: Pilot Study H. Ku, P. Wong, J. Huang, H. Fung and M. Trada	1
Photocatalytic Activity of TiO₂ Loaded on HZSM-5 Zeolite Modified by Ammonia Phosphate W.J. Zhang, K.X. Li and Y. Yu	6
A Study of Art Creation for Picture Books Painted with Mixed Media R.L. Lin	11
Preparation of Aramid Mica Composite Insulation Material X.W. Zhang, S.P. Liu, Y.P. Qian and Y.B. Zhu	16
Synthesis, Structural and Electrochemical Characterization of Honeycomb Supported Pt-Pd-Rh Composite Catalyst for the Decomposition of Gaseous Ammonia to Nitrogen C.M. Hung	21
A Pilot Study on the Relationship between Mechanical and Electrical Loss Tangents of Glass Powder Reinforced Epoxy Composites Post-Cured in Microwaves H. Ku, P. Wong, A. Maxwell, J. Huang, H. Fung and M. Trada	26
Multiphysics Fully-Coupled Modelling of the Electromagnetic Compression of Steel Tubes Á. Martínez-Valle, J.M. Martínez-Jiménez, P. Goes, K. Faes and W. De Waele	31
Preparation Conditions and Properties of Porous SiO₂-Doped TiO₂ Photocatalyst H. Li, Q. Li and W.J. Zhang	40
Experimental Analysis of Dynamic Yield Strength of Material and Research on its Numerical Method G.M. Zhao and X.R. Meng	45
Supplier Selection Model Based on Two Stage Signal Game and Reputation Mechanism X. Ma	50
J-Integral Evaluation in Two Dimensional Interacting Cracks R. Daud, A.K. Ariffin, S. Abdullah and A.E. Ismail	55
A Study of Creative Artworks for Picture Books Colored Using Mixed Media and Computer-Aided Design R.L. Lin	60
Photocatalytic Activity of TiO₂/Ti Film Prepared by Sol-Gel Method on Methyl Orange Degradation W.J. Zhang, B. Yang and J.W. Bai	65
Study on Fabrication, Defects and Compression Properties of Al Foams at Different Foaming Temperatures W.M. Zhao, H. Zhang, H.P. Li, Z.F. Wang, Y. Zhao, R. Zhao and B.Y. Hur	70
Computation of Stress Intensity Factor for Multiple Cracks Using Singular Finite Element R. Daud, A.K. Ariffin, S. Abdullah, A.E. Ismail and A. Zulkifli	75
A Study of Art Creation Using of Hand-Drawing Skills Combining Computer Graphing Technology R.L. Lin	80
The Influence on the Properties of Microporous Mullite of Adding Different Burning-Out Materials Y.B. Bi, H.F. Wang and W. Lu	84
Thermodynamics of Modifying Effect and Experiment Research of Rare Earth in Plasma Jet Surface Metallurgy H. Chen, J.G. Yang and M.S. Chen	89
Research of Electrodeposited RE-Ni-Fe-P-PTFE Composite Coating H. Chen, J.H. Li and J.G. Yang	93
Photocatalytic Degradation Mechanism and Kinetics of Caffeine in Aqueous Suspension of Nano-TiO₂ L.C. Chuang, C.H. Luo, S.W. Huang, Y.C. Wu and Y.C. Huang	97
MoSi₂ Composites for High Temperature Structural Applications Y. Uzunonut, S.C. Uzgur, S.F. Diltemiz, M.C. Kushan and R. Ölmez	103

Effect of Post Weld Heat Treatment on Fusion and Heat Affected Zone Microstructure and Mechanical Properties of Inconel X-750 Welds P. Peasura and B. Poopat	108
The Influence of Welding Parameters on Effect of the Complete for Resistance Spot Welding on Mild Steel P. Peasura	113
Effect of Mg-Nd Master Alloys on Ignition-Proof Performance of AZ91D Magnesium Alloy W.M. Zhao, Y. Zhao, Z.F. Wang, Y.Y. Li, J. Ding and H.T. Xue	118
The Time-Frequency Resolution of Short Time Fourier Transform Based on Multi-Window Functions L.H. Wang, Q.D. Zhang, Y.H. Zhang and K. Zhang	122
Thermodynamics and Dynamics Study on Solidification Process of Mg_3Zn_6Y Quasicrystals W.M. Zhao, Z.F. Wang, H.P. Li and C.L. Qin	128
Research on Modeling Method of Runway Frictional Coefficient Measuring Vehicle Based on Impedance Diagrams X.D. Shi, S.W. Shi, L. Zhang and J.L. Li	133
Research of Aircraft Cable Fault Detecting Method Based on Hilbert Huang Transformation T. Jing, L. Zhang, X.D. Shi and L.W. Wang	138
Experimental Study on Effects of Steel Fiber Volume on Mechanical Properties of SFRC F.R. Mansour, S. Parniani and I.S. Ibrahim	144
Photochromic and Self-Cleaning Properties of TiO_2-AgCl/Cu^{2+} Thin Films W. Sangchay, L. Sikong, K. Kooptarnond and X. Wei	149
An Adaptive Edge Detection Method for Image Polluted by Hybrid Noise in Image Measurement B.Z. Li, H.J. Chen and J.G. Yang	156
Removal Virus Bioaerosols by Filters Pretreated with Chitosan/Surfactant Y.C. Huang, S.H. Yang and C.H. Luo	163
Effect of CeO_2 on the Electrical Properties of Ta_2O_5-Doped TiO_2 Capacitor-Varistor Ceramics T.G. Wang, Q. Qin and W.J. Zhang	168
Effect of Temperature on Microstructure and Electrical Properties of (Y, Ta)-Doped TiO_2 Capacitor-Varistor Ceramics T.G. Wang, Q. Qin and W.J. Zhang	173
Effect of Nanosized Al_2O_3 as Additive on the Sintering Characteristics and Vickers Hardness of Al_2O_3/Si_3N_4 Compound Ceramics H.F. Wang, S.M. Hao, Y.B. Bi and R.H. Yu	178
Synthesis and Phase Transformation of Calcium Phosphate Prepared from Chicken Eggshells and Ammonium Phosphate P. Pankaew, E. Hoonnivathana, P. Limsuwan and K. Naemchanthara	182
J-Integral Analysis of Surface Cracks in Round Bars under Combined Loadings A.E. Ismail, A.K. Ariffin, S. Abdullah, M.J. Ghazali and R. Daud	187
Mode III Stress Intensity Factors of Surface Crack in Round Bars A.E. Ismail, A.K. Ariffin, S. Abdullah, M.J. Ghazali and R. Daud	192
Antibacterial Activity of TiO_2 and Fe^{3+} Doped TiO_2 Nanoparticles Synthesized at Low Temperature S. Boonyod, W. Sutthisripok and L. Sikong	197
Preparation and Characterization of Tellurium Nano-Particles by Long Pulsed Laser Ablation W. Phae-Ngam, V. Kosalathip, T. Kumpeerapun, P. Limsuwan and A. Dauscher	202
Radiation Shielding Lead-Free Glass Based on Barium-Bearing Glass Using Thailand Quartz Sands K. Won-In, N. Sirikulrat and P. Dararutana	207
Photocatalytic Activity against <i>Penicillium expansum</i> of Ag-Doped $TiO_2/SnO_2/SiO_2$ J. Yaithongkum, K. Kooptarnond, L. Sikong and D. Kantachote	212
Study on Random Reliability Analysis of Dam Abutment J.H. Wang	218
Numerical Study on Laser Cladding Process of Magnesium Alloys Q.M. Chang, C.J. Chen, X. Chen and S.Q. Bao	224

Enhanced Authentication Using Keystroke and Mouse Dynamics M. Boopathi and M.P. Vani	230
Dislocation Distribution Model of Mode I Dynamic Crack Y.T. Wang and N.C. Lü	235
Digital Printing Performance of Cashmere Fabric under Acid or Alkaline Conditions Y.N. Yan, X.R. Zhang, D. Li and J.J. Xu	240
Measurement of Residual Strain in Cold Spray Process Using X-Ray Diffraction and Finite Element Method T.D. Phan, S.H. Masood, S.H. Zahiri and M.Z. Jahedi	245
The Control Policy for Environmental Abnormal Variation in the Lower Yellow River J. Yan, J. Zhang, X.B. Yang and Y.H. Zhang	250
Comparisons of the Printing Performance between the Mixture of Paste A-9, Sodium Alginate and Surname Starch after Mixed and the Original Paste Mixture in Digital Printing of Cashmere Fabric Y.N. Yan	255
Design of Dig-Art Imitating Batik Pattern D. Li and Y.N. Yan	260
High Efficient Sediment-Transport Water Volume in High Sediment-Laden River J. Yan, B. Liang, H. Cao and Y.H. Zhang	265
Analytical Solutions of Mode III Moving Crack under Concentrated Force Boundary Condition Y.T. Wang, N.C. Lü and C. Jin	271
Global Warming and the Optimal Utilizing Method for Urban Rain-Flood J. Yan, J. Zhang, X.B. Yang and Y.H. Zhang	276
The Design of the Resistance-Heated Furnace Control Based on BP Network PID Algorithm H.Z. Chen	281
Influence of Heat Treatment on Microstructures and Textures of Hot-Extruded Ni₄₇Ti₄₄Nb₉ Shape Memory Alloy Tubes Y. Yan, W. Jin and X.W. Li	286
Corrosion Resistance and Electrical Conductivity of TiN/CrN Multilayer Coated Stainless Steel W.Y. Ho, C.H. Yang, W.C. Huang and W.Y. Ho	291
Cathodic Protection Performance of Al-Zn-In-Mg-Ga-Mn Sacrificial Anode Y.B. Huang, G.W. Song, H.D. Ding, X.B. Liu and X.H. Shao	296
Fracture and Deformation of Extended-Chain Crystals in Poly(ethylene Terephthalate)/Bisphenol-A Polycarbonate Blends Crystallized at High Pressure J. Lu, J.J. Tian, D.P. Zhang and R. Huang	301
Research on Performance of Steel Slag and Porous Cement Concrete Made by Steel Slag Aggregate Q.D. Liu, J.Y. Sun and Y. Han	306
Research on the Properties of Rheology of Ni/TiO₂ Group ER Fluid S.K. Tan, X.P. Song, L. Qiao, H.Y. Guo, S. Ji and H. Zhao	312
Study on the Adhesion of Films on Gd by Magnetron Sputtering X.Q. Zheng, S. Xie and R.X. Yi	316
Variation of Color in Zirconium Nitride Thin Films Prepared by Reactive DC Magnetron Sputtering P. Klumdoung, P. Asanithi, S. Chaikakun and P. Limsuwan	320
The Effects of He-Ar-O₂ Shielded Gas Addition on GTA Welding on Welded Shape of UNS S31803 Duplex Stainless Steel S. Nansaarn and S. Sopha	325
Fuzzy Logic Predictive Model of Tool Wear in End Milling Glass Fibre Reinforced Polymer Composites A.I. Azmi, R. Lin and D. Bhattacharyya	329
Anomalous Effect of Strain Rate on the Tensile Elongation of Coarse-Grained Pure Iron with Grain Boundary Micro-Voids X.M. Cao, Q.Q. Duan and X.W. Li	334
Effect of Recycled EVA as Modifier on the Various Properties of Bituminous Binder for Road Application N. Moumita, T.K. Chaki and K.R. Sudhakar	339

Mechanical Characterization and Wear Performance of WC – ZrO₂ – Ni Cermets Produced by Hot Isostatic Pressing	
I. Hussainova, A. Smirnov and M. Antonov	344
Cyclic Oxidation Behaviour of MoSi₂ and MoSi₂-Si₃N₄ Composites for Aircraft Gas Turbine Elements	
Y. Uzunonut, S.C. Uzgur, S.F. Diltemiz and M.C. Kushan	349
Structure and Rheological Behavior of Alkoxide-Based Precursors for Drawing of Metal Oxide Micro- and Nanofibres	
M. Hussainov, T. Tätte, M. Paalo, J. Gurauskis, H. Mändar and A. Lõhmus	354
A Novel Biocompatible Actuator Based on Electrospun Cellulose Acetate	
J. Li, C.D. Kee, S. Vadahanambi and I.K. Oh	359
Synergetic Effects between Al₂O₃ and HZSM-5 for NO Reduction by CH₄	
L.L. Ren and X.M. Pan	364
Research on Direct Reduction Dynamic Model of Carbon-Bearing Pellet Containing Zinc	
J.S. Wang, X.W. An, W.H. Yu, X.F. She, Y.G. Ding and Q.G. Xue	369
Biaxial Gas-Pressure Forming of a Duplex Stainless Steel	
H.S. Lee, J.H. Yoon, J.T. Yoo and W.H. Cho	374
Electrodeposition of Copper-Indium-Diselenide (CuInSe₂) Thin Films	
M.J. Jeng and W.K. Lei	378
Optimal Scheduling and Simulation of Snow Removers for Airfield Pavement Based on Breadth-First Search	
L.W. Wang, J.L. Wei, L. Zhang and G.P. Yao	383
Nanomechanical Properties of Prepared-TiO₂ Films Using Nanoindentation Technique	
L.C. Chuang and C.H. Luo	388
Thermal Characterization of Low Grade Wood Polyacrylonitrile Composite	
M. Kumar, P.L. Sah, M.G.H. Zaidi and A. Srivastav	392
The Application of CAD Technology on the Design of Reinforced and Prestressed Counterforce Wall System	
D.L. Wang and J.H. Shen	397
Preparation of Carbon Nanoparticles by Long Pulsed Laser Ablation in Water with Different Laser Energies	
V. Thongpool, S. Denchitcharoen, P. Asanithi and P. Limsuwan	402
Preparation of Surface-Modified TiO₂ Nanoflower Film as Efficient Visible-Active Photocatalysts	
Y.H. Wu, M.C. Long, C. Chen and W.M. Cai	406
YSZ-Reinforced Ni-P Deposit: An Effective Condition for High Particle Incorporation and Porosity Level	
N.B. Baba, A. Davidson and T. Muneer	412
Characterizing of Natural Nanoclay/Polyethylene Nanocomposite during Processing Steps	
R. El-Sheikhy and M. Al-Shamrani	418
Explosion Cladding of CuSn Bronze to Malleable Iron	
M. Turňa, J. Ondruška, P. Nesvadba and M. Behúlová	422
Fast Laboratory Test for Mechanism of Natural Nanoclay-Water Interaction	
R. El-Sheikhy and M. Al-Shamrani	426
Size Effect on Volume-Shape Change of both Micro and Nano Aluminum-Silicate Minerals	
R. El-Sheikhy and M. Al-Shamrani	430
Growth Kinetics and Microstructure of Siliconized Layer by Molten Salt Electrodeposition	
H.L. Yang, C.W. Cui, Y.G. Li, G.Z. Tang and Y.Z. Zhang	434
Thermal Degradation Kinetics of Polyurethane/polybenzoxazine Alloys	
S. Tiptipakorn, S. Rimdusit, P. Suwanmala and K. Hemvichian	439
Photocatalytic and Antibacterial Properties of TiO₂ Composite Thin Films Coated on 304 Stainless Steel Substrate Synthesized at Low Temperature	
N. Muangtrairat, V. Rachpech and L. Sikong	444
Application of High-Frequency Induction Heating for Brazing of Dissimilar Metals	
K. Demianová, M. Sahul, M. Behúlová and M. Turňa	450
Amniotic Membrane Loading Epidermal Stem Cells Accelerate Impaired Wound Healing in Diabetic Rats	
Q.L. Zhong, D.W. Liu and F.R. Liu	455

Experimental and Numerical Investigation of the Steel X210Cr12 Forming in Semi-Solid State	
M. Behúlová, D. Aišman, H. Jirková and B. Mašek	461
Quality Estimation of Bandwidth in a Network	
M.P. Vani and N. Mythili	467
A Method for Simulation of Microstructure Evolution in 980MPa-ULCB Steels during On-Line Heating Treatment	
J.X. Zhang and A.H. Gao	472
Two Dynamic Propagation Problems of Mode III Interface Crack	
N.C. Lü, Y.H. Cheng and Y.T. Wang	477
CH₄ and CO₂ Detection by Using Carbon Nanotube-Based Sensors	
A. Firouzi, S. Sobri, F.M. Yasin and F.R. Ahmadun	482
Effect of the Milling Conditions on the Formation of Nanostructured Fe–Al Powders	
Z. Hamlati, A. Guittoum, S. Bergheul, N. Souami, K. Taibi and M. Azzaz	490
Determination of Ascorbic Acid Based on Gold Nanoparticles-L-Alanine/GCE	
H.Y. Kuang, J.H. He, Q. Xu and Z.R. Song	498
Application of Fractional Model and Two Part Model to Evaluation on Mortgage Risk of Default Behaviour	
Y. Cheng, C.C. Wu and W.H. Lin	503
Study on Improvement Effect of Aramid Fiber and PVA Fiber on of Mica Paper Strength and Dielectric Properties	
Z.Q. Lu, M.Y. Zhang, L. Hua and G.Y. Zhu	508
The Effect of the Element of Ni on the Crack of Manual SHS Welding Joint	
B.F. Li, W.T. Xin, F.W. Liu, H.H. Zhu and Q. Li	513
Polymerization of Methyl Methacrylate with a Novel Carbon Bridged Cyclopentadienyl Chromium Complex	
Z.Z. Cheng, X.C. Yan, Y.J. Nie, R. Lei and S.S. Lin	517
The Mean Projected Range and Range Straggling of Er Ions Implanted in Silicon-On-Insulator	
X.F. Qin, S. Li, F.X. Wang and Y. Liang	522
Phonon Modes in AlGa_N Alloy with AlGa_N/Ga_N MQW Interlayer	
J. Zhou, Y.F. Jin, E.G. Dai, Z.J. Yang and B. Shen	526
Effect of Heat Treatment Temperature on the Color of Okan Wood	
Q. Shi, F.C. Bao, J.X. Lu and J.H. Jiang	531
Building Engineering Supplier Selection Based on Fuzzy Group Decision Information Aggregation	
X. Chen, X.F. Zhou and Y. Zhang	535
The Preservation Mechanism of Treated Populus Ussuriensis by Extract of Camphor Leaves	
G.Q. Xu, J.L. Liu, S.H. Hu and X.H. Wang	540
Microstructure of <i>Eucalyptus pellita</i> under Different Thermal Treatment Temperatures and its Effect on Physical-Mechanical Characteristic	
X.H. Wang, J.L. Liu, G.Q. Xu and Y.B. Chai	544
A Kind of Improved RED Algorithm of WSN Oriented to Self-Similar Traffic	
Y.J. Wang and H.Y. Lin	549
Acoustic Modes in the Annular Duct with Uniform Mean Flow	
Z.X. Liu	554
Application of Fuzzy Neural Network in Gas-Solid Reaction Kinetics in Porous Media	
X.M. Yu, X.K. Yu and Y. Hu	559
Plasma Carburizing of AISI 316L Austenitic Stainless Steel at Low Temperature	
S.M. Zheng and C. Zhao	564
Flexible Synthesis of Heat Exchanger Network with Particle Swarm Optimization Algorithm	
X.L. Zhang, H.C. Yin and Z.Y. Huo	569
The Effects of Environmental Factors on the Pitting Corrosion of 304 Stainless Steel	
S.H. Zhang, Y. Tan and K.X. Liang	573
A Novel Optimization Model for Location of Waste Transfer Stations	
G.C. Zhao	578

Research on WFQ Algorithm Improvement of Wireless Sensor Network N. Zhao and X. Li	583
Effect of Pressures on the Chemical Vapor Deposition of BN Using Borazine J.S. Li, C.R. Zhang, B. Li, F. Cao and S.Q. Wang	588
The Range Distribution of Nd Ions Implanted in Silicon Crystal X.F. Qin, S. Li, F.X. Wang and Y. Liang	593
Effects of Different Surface Modification to the Carbon Fiber Electro-Mechanical Response X. Fang, S.R. Zhu, Z.Q. Li and Y. Lv	597
Curing Effects on Air Permeability of Concrete G. Camarini	602
Piezoresistivity of Modified Carbon Fiber Polymer-Matrix Composites Y. Lv, S.R. Zhu, Z.Q. Li and X. Fang	607
Quality Control Model for Manufacturing Process Based on GQMM Z.H. Yu and J. Zhou	612
Reliability Prediction of Wireless Sensor Network Based on Neural Network X.D. Sun and X.J. Wang	618
Optical Transmission through Subwavelength Metallic Slit Arrays A.H. Wang, J.J. Cai and Y.B. Chen	623
Research on Combustion Process and NO_x Formation in a Marine Diesel Engine S. Zhou and Y.Q. Zhu	628
Open Esq Micro Focus Net Express Embedded in COBOL P. Sumathi and M.P. Vani	633
Numerical Analysis of Reinforced Concrete Frames Subjected to Fire under Loading G.M. Ghanem, M.M. Ebd-Elrazek, S.M. Abd El-Bakey, A.A. Hassan and E. Emam Ali	637
Electrical and Piezoelectric Studies of SrBi_{3.98}Dy_{0.02}Ti₄O₁₅ P. Sarah and B. Mamatha	641
Effects of Strong Carbide-Forming Elements on Low Temperature Salt-Bath Chromizing J.L. Ye and F. Ye	646
The Study on the Modeling Design of Landscape Garage Z.X. Sun and D.S. Zhang	651
The Effect of CH₄ and CO₂ Exposure on Carbon Nanotubes Electrical Resistance A. Firouzi, S. Sobri, F.M. Yasin and F.R. Ahmadun	655
Heat Storage Experiment of the Microencapsulated Phase Change Material Slurry in a Horizontal Rectangular Tank Y.L. Zhang, Z.H. Rao, J.F. Xie and S.F. Wang	662
Signed Graph Model of Equipment Supporting Supported by Space Information H.F. Zhang, Y. Lu, L.Y. Chen and Y. Ma	668
Research on Qualitative Simulation of Weapon Equipment Wasting in a War L.Y. Chen, H.F. Zhang, Y. Lu and K. Huang	673
Study on the Bayesian Networks Decomposition by the Improved Multi-Linked Tree Algorithm Z.W. Wang and J. Zhou	678
The Analysis about Adult Sports Education Quality Certain Problem W.S. Xu and X.L. He	683
Research on Virtual Learning Community Based on Physical Knowledge M.L. Li, H.J. Peng and X.K. Zhang	688
Color Image Segmentation Based on Self-Organizing Maps R. Geng	693
Ethylene Polymerization by a New Zirconium Complex Z.Z. Cheng, Y.J. Nie, X.C. Yan, R. Lei and S.S. Lin	699