

Table of Contents

Advanced Ferrous Alloys and Processing

	I.
Sticking Mechanisms Occurring during Hot Rolling of Ferritic Stainless Steels J.S. Lee, C.Y. Son, C.K. Kim, D.J. Ha, S.H. Lee, K.T. Kim and Y.D. Lee	3
Sound Radiation Characteristics for Structural Damage Identification U. Lee, I.J. Jang, H.S. Go and T.J. Kim	7
Optimization Results of High Strength Steel Production Process Y. Feng and H. Sun	11
Metal Injection Molding of Nickel-Free Austenitic Stainless-Steels I-Manufacturing Process Y. Kuroda, M. Komada, R. Murakami, S. Fukumoto, N. Tsuchida, Y. Harada and K. Fukaura	15
Metal Injection Molding Method of Ni-Free Austenitic Stainless Steel II - Microstructure and Mechanical Properties M. Komada, Y. Kuroda, R. Murakami, N. Tsuchida, Y. Harada, K. Fukaura and S. Fukumoto	19
Aqueous Corrosion Characteristics of Iron Aluminides Y.H. Yoo and J.G. Kim	23
Continuous Cooling Transformation Behavior of High Strength Low-Alloyed Cold Rolled Sheet Steel H. Liu, D.Z. Zhong, L.Q. Zhao, T. Peng, L.X. Wu and J. Zeng	27
Study of High Temperature Wear Resistance of Hot Work Steel for Magnesium Alloy Die Casting W.Z. Li and N. Qu	33
Dry Sliding Wear Mechanisms of the High Nitrogen Austenitic 18Cr-18Mn-2Mo-0.9N Steel at Different Applied Loads Y.S. Kim, S.D. Kim and S.J. Kim	37
Fluid-Structure Coupled Analyses of Composite Wind Turbine Blades T.H. Cheng and I.K. Oh	41
Cementite Decomposition of Pearlitic Steels during Cold Drawing J. Balak, X. Sauvage, D.L. Lee, C.Y. Lee and P. Pareige	45
The Texture Evolution of Dual Phase Steel Sheets Y.D. Liu, Q.W. Jiang, H. Tong, Y.D. Wang and L. Zuo	51
Effects of Finishing Rolling Temperature on the Microstructural Behavior for Fe-0.1C Steel as a Function of Niobium Content N.H. Kang, I. Park, J.W. Jin, S.H. Byun, Y.J. Lee and K.M. Cho	55
Plastic Deformation Behavior of Micro-Alloyed Cold Forging Steel Y.N. Kwon, Y.S. Lee and J.H. Lee	61
Abnormal Grain Growth of Fe-3%Si Steel Approached by Solid-State Wetting Mechanism K.J. Ko, P.R. Cha, J.T. Park, J.K. Kim and N.M. Hwang	65
Analysis on Void Closure Behavior during Hot Open Die Forging Y.S. Lee, Y.C. Kwon, Y.N. Kwon, J.H. Lee, S.W. Lee and N.S. Kim	69
FIB and TEM Studies on the Bainitic Microstructure in Low Carbon HSLA Steels J.S. Kang, S.S. Ahn, C.Y. Yoo and C.G. Park	73
The Potentiality of Micro-Scaled Multi-Filament Wire Forming Using Repetitive Hydrostatic Extrusion Process S.M. Lee, H.J. Park, S.S. Kim, T.H. Choi, E.Z. Kim and G.A. Lee	77

Light Metals

	II.
Mechanical Behaviors of Mg-6%Al-0.2%Mn Based Casting Alloys J.M. Kim and J.H. Jun	83
Processing and Tensile Property of Nano Dispersed Al-Fe-(Mo, V, Zr) Bulk Alloy T.K. Jung, M.S. Kim, W.Y. Kim, H.C. Kwon and S. Yi	87

Enhanced Formability of AZ31 Magnesium Alloy Sheet Processed by Equal Channel Angular Rolling and Annealing Treatment	91
Z.H. Chen, Y.Q. Cheng, W.J. Xia, H.G. Yan and D. Chen	
The Effect of Alloying Elements on the c/a Ratio of Magnesium Binary Alloys	95
J.S. Park and Y.W. Chang	
Forging Process Design of Al Rotating Arm Holder by FE Analysis	99
K.D. Hur, H.Y. Lee and H.T. Yeo	
Effects of Heat Treatments on Microstructure of AM50 Magnesium Alloy	103
Y.L. Ma, F.S. Pan and M.B. Yang	
Homogeneity of Grain Refinement of Aluminum Alloy with Compressive Torsion Processing	107
Y. Kume, M. Kobashi and N. Kanetake	
Effect of Alloying Elements on Mechanical Properties for A356 Casting Alloy	111
C.Y. Jeong, C.S. Kang and J.I. Cho	
Research and Development of Mg-Al-Sr Alloys	115
X.D. Peng, H. Nie, W.D. Xie and F.S. Pan	
Preparation of Mg-Sr Alloy Using Electrochemical Reduction	119
N.C. Liu, W.D. Xie, X.D. Peng, Q.Y. Wei and H.D. Li	
Relationship between Tensile Deformation and Crystallographic Orientation of Grains in the Balanced Al-Mg₂Si Alloys	125
K. Horiba, J. Tsukiyama, K. Matsuda, Y. Uetani and S. Ikeno	
Relationship between Tensile Deformation and Crystallographic Orientation of Grains in Al-Mg-Si Alloys with Cu	129
J. Tsukiyama, K. Matsuda, Y. Uetani and S. Ikeno	
Influence of Compressive Torsion Processing Temperature on Microstructure Refinement and Property of Aluminum Alloy	133
S. Tahara, Y. Kume, M. Kobashi and N. Kanetake	
Heat Resistance of Mg-Nd Based Casting Alloys Containing Gadolinium and Yttrium	137
J.H. Jun, B.K. Park, J.M. Kim and K.T. Kim	
Effect of Ca and Sr Content on Elevated Temperatures Mechanical Properties of a Cast AZ91 Magnesium Alloy	141
I. Takeuchi, K. Hirai, Y. Takigawa, T. Uesugi and K. Higashi	
Mechanical Properties of Twin Roll Cast AZ91 Magnesium Alloy at Room Temperature	145
S.H. Uchida, I. Takeuchi, G. Gonda, K. Hirai, T. Uesugi, Y. Takigawa and K. Higashi	
Influence of Initial Texture on Twin Formation and Plastic Deformation of Rolled AZ31 Mg Alloy	149
B.H. Lee, S.H. Park, M. El Mehtedi, E. Evangelista and C.S. Lee	
Microstructure and Dynamic Ultra-Micro Hardness of the As-Cast and Extruded Mg-Al-Ca-Sm Alloys	153
H.T. Son, J.S. Lee, J.M. Hong, D.G. Kim, K. Yoshimi and K. Maruyama	
HRTEM Observation of the Age Hardening Precipitates in Mg-Zn Alloy	157
S. Mori, T. Kawabata, K. Matsuda and S. Ikeno	
Continuous Rheological Forming of A6061 Wrought Aluminum Alloy by Using Helical Shape Stirrer and its Thixoforging Process	161
C.G. Kang and S.M. Lee	
Effect of Heat Treatment on Microstructures and Properties of Mg-9Gd-4Y-0.3Zr Alloy	167
S.J. Yao, W.X. Li, S. Yang and D.Q. Yi	
Titanium Hydriding and Consolidation for Recycling of Titanium Tuning Chip	171
J.M. Jang, W.S. Lee, S.H. Ko and I.H. Kim	
Intermetallics and High Temperature Alloys	III.
Influence of Microstructure Change on the Superplastic Properties of Ti₃Al Base Alloy	177
Y.Y. Liu, Z.K. Yao, X. Luo and L.K. Cao	
Thermodynamic Analysis of Nb-Cr Powders of Mechanical Alloying	181
X.W. Nie, S.Q. Lu and K.L. Wang	

Attempt to Control Spatial Distribution of Nano-Gold Particles Using Nanoporous Surfaces of FeAl Single Crystal	185
M. Tsunekane, K. Yoshimi and K. Maruyama	
Effect of Heat Treatment Conditions on Microstructure and Fracture Toughness of a Cast Ti-Al Alloy	189
T.K. Ha and J.Y. Jung	
Interfacial Characteristics of Iron Aluminides Intermetallic Layers on Al-Coated Steel Sheet	193
Y. Rahmawan, E.R. Baek and T.H. Kim	
Crystal Structure and Thermoelectric Properties of $\text{ReSi}_{1.75}$ Based Alloys	197
S. Harada, K. Tanaka, K. Kishida and H. Inui	
Effect of Texture on Deformation Behavior of AZ31 Mg Alloy	201
J.E. Park, Y.J. Yang and Y.W. Chang	
First Principles Calculations of Thermodynamic Quantities and Phase Diagrams of High Temperature BCC Ta-W and Mo-Ta Alloys	205
K. Masuda-Jindo, V. Van Hung and P.E.A. Turchi	
Mechanical Properties According to Heat Treatment for Gas Turbine Blade Material	209
M.Y. Kim, S.H. Yang and K.H. Song	
Effect of Creep Deformation on the Crystallographic Orientation Distribution in Ni Base Superalloy	213
T. Inoue, K. Tanaka, H. Adachi, K. Kishida and H. Inui	
Effect of Applied External Stress on Hydrogen Desorption from Metal Hydrides	217
R. Matsumoto, K. Tanaka, K. Kishida and H. Inui	
Elastic Properties of L1_0-Ordered Single Crystals	221
C. Wang, K. Tanaka, K. Kishida and H. Inui	
Microstructure Evolution during Lithiation and Delithiation of Ni_3Sn_2 Anode for Lithium Secondary Batteries	225
T. Kosho, K. Kishida, K. Tanaka and H. Inui	
Crystal Structure Variation of Ru_2Si_3 Upon Alloying with Mn	229
T. Koyama, A. Ishida, K. Kishida, K. Tanaka and H. Inui	
Creep Deformation and Microstructure of Alloy 617 Foil at High Temperature	233
S.K. Sharma, J.W. Choi and K.J. Kang	

Advanced Ceramics

IV.

Fabrication of Textured $\text{SrBi}_2\text{Nb}_2\text{O}_9$ Ceramics by Tempered Grain Growth	239
C.W. Cui, J.L. Huang, L.H. Gao, X.H. Yang and X. Wang	
Study on the Properties of Doped La in $\text{BaBi}_4\text{Ti}_4\text{O}_{15}$ Ceramic	243
X.H. Yang, J.L. Huang, X. Wang and C.W. Cui	
Characterization of Bismuth Titanate Powders	247
P. Pookmanee and S. Phanichphant	
In Situ Synthesis of $\text{TiB}_2\text{-TiC}_x$ Ceramic Matrix Composites by Hot Isostatic Pressing	251
D.G. Zhu, H.L. Sun and L.H. Wang	
Preparations and Characterizations of Perovskite PMN Ceramics by Using a One-Step Calcination Method	255
J. Chen, H.Q. Fan, X.L. Chen and S.J. Qiu	
Corrosion Behavior of Si_3N_4 Ceramics under High-Temperature and High-Pressure Water Condition	259
W.J. Kim, S.M. Kang and J.Y. Park	
Electromechanical Properties of NKN-5LT Multilayer Actuator	263
M.S. Kim, S.J. Jeong and J.S. Song	
H_2/CO_2 Gas Separation Characteristic of Zeolite Membrane at High Temperature	267
W.T. Kwon, S.R. Kim, E.B. Kim, S.Y. Bae and Y. Kim	
Hydrogen Separation Characteristics of SiC Nanoporous Membrane at High Temperature	271
Y. Kim, E.B. Kim, S.R. Kim, M.H. Suh, D.J. Choi and W.T. Kwon	
Electrochemical Properties of Cathode for Solid Oxide Fuel Cell with Gd-Doped Ceria Electrolyte	275
T. Shimonosono, G. Hiramatsu, Y. Hirata, S. Sameshima, N. Matsunaga, T. Doi and T. Horita	

Fabrication of Porous Alumina Ceramics by Spark Plasma Sintering Method
D.H. Choi, K. Kamada, N. Enomoto, J. Hojo and S.W. Lee

279

Composite Materials

V.

Dynamic Thermo-Mechanical Properties of Chemically Surface Modified MWCNTs Reinforced Polymeric Composites

A.B. Sulong and J.H. Park 285

Fabrication of Carbon Nanotubes Reinforced Polyethylene Fibers by Melt Spinning: Process Optimization and Mechanical Strength Characterization

A.B. Sulong and J.H. Park 289

Interfacial Characteristics and Wear Resistance of WC_p/White-Cast-Iron Composites

G.S. Zhang, Y.M. Gao, J.D. Xing, S.Z. Wei and X.L. Zhang 293

Spectral Element Modeling for Elastic Two-Layer Beams

S.J. You, I.J. Jang and U. Lee 297

Properties of CB/Rubber Composites Filled by Carbon Black Used as Catalysts for Hydrocarbon Decomposition

S.Y. Dai, G.Y. Ao and M.S. Kim 301

Electromagnetic Interference Shielding Properties of Carbon Nanotubes Reinforced Composites

T.W. Kim, H.R. Lee, S.S. Kim and Y.S. Lim 305

A Study on Fatigue Properties of a TiNi/Al Shape Memory Alloy

Y.C. Park, J.H. Kang, J.K. Lee, J.H. Sung, S.H. Baek and Y.J. Jo 309

Microstructure and Superconductive Property of the Extruded MgB₂/Al Composite Materials

K. Matsuda, M. Morobayashi, K. Nishimura, K. Mori, S. Aoyama, Y. Yabumoto, Y. Hishinuma and S. Ikeno 313

Numerical Simulations for Uniaxial Ratcheting of SiC_p/6061Al Composites Concerning Particulate Arrangement

S.J. Guo, G.Z. Kang and C. Dong 317

Fabrication of Oxide Ceramics Composite by Reactive Infiltration Process

Y. Kobayashi, M. Kobashi and N. Kanetake 321

Effect of Powder Blending Ratio on Synthesis of TiB₂ Particles by Al-Ti-B Combustion Reaction

W. Yoshida, M. Kobashi and N. Kanetake 325

Development of Hybrid FRP-Concrete Composite Compression Members

H.J. Joo, S.S. Lee, S.J. Yoon, J.K. Park and K.Y. Shin 329

Effect of Phosphorus Doping into the Silicon as an Anode Material for Lithium Secondary Batteries

M.H. Kong, D.J. Byun and J.K. Lee 333

A Study on the Design Curves for Pultruded Composite Columns

S.S. Lee, S.H. Chae, S.J. Yoon and S.K. Cho 337

Structural Behavior of Polymer Mortar GFRP Composite Pipe

J.H. Nam, S.S. Lee, S.J. Yoon, D.M. Ok and J.B. Kim 341

Physical Characteristic of Ready Mixed Concrete with Different Replacement Ratio of Recycled Aggregate

S.J. Yoon, S.Y. Seo and W.J. Lee 345

Evaluation of the Influence of Additives on the Mechanical Properties and Photo-Stability of Glass Fiber Reinforced Epoxy Pipes Using Central Composite Design

D. Aht-Ong, C. Pechyen and D. Atong 349

Advanced Forming and Processing

VI.

Microstructure, Hardness, and Wear Resistance of Powder-Injection-Molded Products of Fe-Based Metamorphic Powders

C.K. Kim, C.Y. Son, D.J. Ha, T.S. Yoon and S.H. Lee 355

Fabrication of Sandwich Structure with Superplastic Forming Process from Diffusion Bonded Ti-6Al-4V Sheets	359
H.S. Lee, J.H. Yoon, Y.M. Yi and D.H. Shin	
Preparation and Characterization of Tungsten Heavy Alloy Feedstock for Metal Injection Molding	363
S.H. Islam, X.H. Qu and M. Tufail	
The Effect of Isothermal Forging Process Parameters on the Microstructure and the Properties of TA15 Near α Titanium Alloy	367
H.Z. Guo, Z.L. Zhao, B. Wang, Z.K. Yao and Y.Y. Liu	
Temperature Dependent Microstructure and Mechanical Behavior in AZ31 Alloy Processed by an Asymmetric Rolling	373
H.G. Jeong and W.J. Kim	
Research on Horizontal Electromagnetic Continuous Casting of Sn-P Bronze Strips	377
C.H. Hui, T.J. Li and W.Z. Jin	
Effects of Temperature and Strain Rate on Compressive Mechanical Properties of Ultrafine-Grained CP Titanium	381
Z.G. Fan and C.Y. Xie	
Recrystallization Characteristics of Ti-50.9at%Ni Alloy Processed by Equal Channel Angular Extrusion	385
Z.G. Fan and C.Y. Xie	
Experimental Study of Springback in Draw Bend Test of AZ31B Magnesium Alloy Sheet	389
M.G. Lee, J.G. Choi, H.Y. Kim, R.H. Wagoner and J.K. Lee	
Texture and Formability of Frictionally Rolled AA 1050 Aluminum Alloy Sheets	393
S. Akramov, I.S. Kim and N.J. Park	
The Study of Residual Stresses for Roller Hemmed Aluminum Alloys	397
D.O. Kim, D.W. Shin, Y.S. Yoon, Y.M. Ryu and B.S. Han	
Formability and Mechanical Property of Aluminum Sheets Locally Surface-Modified by the Concept of Surface Friction Joining	401
C.G. Lee, S.J. Kim, H.N. Han and K.S. Chung	
Evolution of Microstructure and Texture of Pure Al Single Crystal Having {112}<110> Orientation during Severe Plastic Deformation	405
N. Ishida, D. Terada, K. Kashihara and N. Tsuji	
Characterization of Mg-Al Sheet Clad Materials Fabricated by Hot Rolling	409
J.S. Lee, H.T. Son, K.Y. Lee, S.S. Park, D.G. Kim and J.C. Bae	
Mechanical Properties of Ultra-Fine Grained Fe-Cr-Ni Alloy Fabricated by ARB	413
T. Maekawa, H. Kitahara and N. Tsuji	
Extrudability and Bonding Strength of Copper Clad Aluminum Alloy Composites Produced by Indirect Extrusion Process	417
H.C. Kwon, T.K. Jung, J.W. Kang, H.J. Lee, K.H. Kim, S.C. Lim and H.S. Lee	
Effects of Microstructure on Mechanical Properties of HRS Processed SUS316L Stainless Steel	421
H. Fujiwara, M. Nakatani, Y. Iwahashi and K. Ameyama	
Analysis of Surface Roughness of Immersion Sn Plating Film via Micro Etch Process	425
B.H. Park, H.S. Oh, S.P. Hong and S.J. Hong	
Ring-Rolling Process for Manufacturing Ti-6Al-4V Plane and Profiled Ring-Products	429
K.J. Kim, S.S. Choi, C.Y. Hwang, J.S. Kim, J.T. Yeom and C.S. Lee	
Dynamic Recrystallization during Hot Extrusion in Mg-3Al-0.1Y Alloy	433
T. Noro, T. Uesugi, Y. Takigawa, M. Tsujikawa, H. Mabuchi and K. Higashi	
Warm Forging Characteristics of AZ31 Alloy	437
Y.N. Kwon, Y.S. Lee and J.H. Lee	
Low-Pressure Preheating Combustion Synthesis of Silicon Nitride	441
K. Zhang, L. Bai, W.P. Shen and C.C. Ge	
Improved Density Distribution in Powder Metallurgy Parts with Filtering Methods	445
M.S. Kim	
Dynamic Recrystallization during Hot Extrusion in AZ31 and AZ80 Alloys	449
M. Honda, T. Uesugi, Y. Takigawa, H. Mabuchi and K. Higashi	
Study on Automated Scrap-Sorting by an Image Processing Technology	453
C.W. Kim and H.G. Kim	

Microwave Assisted Esterification of Waste Cotton Fabrics for Biodegradation Films Preparation	457
U. Ratanakamnuan, D. Atong and D. Aht-Ong	
Influence of Annealing Atmosphere on the Mechanical and Wear Properties of Free-Cutting Phosphor Bronze Alloy	461
H. Cho, B.S. Lee, H.Y. Kim and H.H. Jo	
Grain Refinement of Mg-Y-Zn Alloy by Friction Stir Processing	465
T. Morishige, M. Tsujikawa, S. Oki, M. Kamita, S.W. Chung and K. Higashi	
Mechanical Milling of Prealloyed Cu-Cr Powders Prepared by Gas Atomization	469
H.K. Yeo, S.H. Ahn and K.H. Han	
 Advanced Melt Processing, Casting and Joining	
	VII.
An Activity Model of N and V in Fe-C-V-N Molten Metal	
J. Peng, S.J. Wang, L.X. Liu, Y. Zhou and Y.C. Dong	475
Optimization of Laser-Arc Interspacing Distance during CO₂ Laser-GMA Hybrid Welding by Using High-Speed Imaging	
C.H. Kim, H.B. Chae, J.K. Kim and J.H. Kim	481
Mechanical Properties and Microstructure of Strip Casted Ag-27%Cu-25%Zn-3%Sn Brazing Alloy	
K.A. Lee, S.J. Kim and M.C. Kim	485
Micro-Structural Evolution of AlCu5MnCdVA Cast Aluminum Alloy by Semi-Solid Isothermal Annealing Process	
G.Y. Yang, W.Q. Jie, Q.T. Hao and R.Q. Zhang	489
A Study of Electroslag Welding Process for Special Welding Joint with Thick Plate	
C.S. Park, Y.S. Ryu and J.S. Lee	495
Sintering Mechanism of Composite Ag Nanoparticles and its Application to Bonding Process-Effects of Ag₂CO₃ Contents on Bondability to Cu-	
H. Tatsumi, Y. Akada, T. Yamaguchi and A. Hirose	499
Studies for the Influences of Welding Parameters of GMA Welded 600MPa Grade TRIP Steel	
G.C. Lee, J.S. Kim, B.Y. Lee and S.Y. Lee	503
Effects of the Process Parameters on Beads by Plasma Arc Welding of the Membrane for LNG Ships	
B.J. Kim, Y.R. Son, J.O. Yun and J.S. Lee	507
The Effect of Post Weld Heat Treatment on Mechanical Properties of Friction-Welded Alloy 718 and SNCRW Stainless Steel	
N.Y. Kim, J.H. Kim, Y.S. Kong, J.W. Yoon, J.T. Yeom, D.G. Lee and N.K. Park	511
Characteristics of SnO_x-ZnO Composite Film on Poly Ethylene Terephthalate (PET) Substrate Prepared by ECR-MOCVD	
J.H. Park, D.J. Byun and J.K. Lee	515
Thermodynamic Calculation of Alpha-Case Formation in Titanium Alloys	
S.Y. Sung, B.J. Choi, S.H. Noh, C.S. Hahn, Y.M. Ryu, B.S. Han and Y.J. Kim	519
Functions and Morphology of Metal Lead Addition to Ancient Chinese Bronzes	
C.X. Pan, L.M. Liao and Y.L. Hu	523
In Situ Combustion Synthesis of Ti-Al Intermetallic Compounds in Al Alloy Casting Process	
G.S. Cho, K.R. Lee, K.H. Choe and K.W. Lee	527
Permanent Mold Casting Practice and Microstructure and Mechanical Properties of Thin-Sectioned ADI Casting	
B.M. Moon, B.H. Kim, J.S. Shin and S.M. Lee	531
Effect of Additive Powder on Microstructural Evolution in the Wide-Gap Braze Region by In Situ High Temperature ESEM	
Y.H. Kim, K.T. Kim, S.Y. Shin and S.I. Kwun	535
A Study on the Welding Characteristics of Dissimilar Metal Using a High Power CW Nd:YAG Laser	
H.J. Shin, Y.T. Yoo and B.H. Shin	539
Rheocast of Al-Si-Mg Alloy Containing 1Mass% Iron	
M. Tsubata, Y. Uetani, H. Takagi, K. Matsuda and S. Ikeno	543

Improvement of the Accuracy of High Temperature Slab Weight in Continuous Casting	547
S.Y. Kim, Y.S. Park and J.M. Park	
Surface Roughness of Cu-Be Alloy (C17200) Rod Alloy Produced by Horizontal Type Continuous Casting Process	547
S.K. Lee, H.S. Lee, S.C. Lim, T.K. Jung, K.H. Kim, H.C. Kwon and W.M. Jung	
Effects of Electric Pulse on Solidification Structure of KS282 Alloy	551
L.J. He, J.Z. Wang, J.G. Qi and D.Q. Cang	
Fatigue Crack Characteristics of Friction Stir Welded Aluminum Alloy Joints	555
H.Q. Qu, M. Tsujikawa, S.W. Chung, T. Hirata, S. Oki and K. Higashi	
Alignment of Primary Phase of a Binary Alloy during Solidification	559
K. Iwai, M. Usui and S. Asai	
	563

Magnetic, Electronic and Optical Materials

VIII.

Microstructure and Properties of Cu-3.2Ni-0.75Si-0.3Zn Alloy for Lead Frame	569
Y. Zhang, P. Liu, B.H. Tian, D.M. Zhao, S.G. Jia and X.H. Cheng	
Preparation of CaAl₂O₄: Eu²⁺ Long Persistent Blue Phosphor	573
K.S. Bartwal, B.K. Singh and H. Ryu	
Large Isothermal Magnetic Entropy Change after Hydrogen Absorption into La_{0.5}Pr_{0.5}(Fe_{0.88}Si_{0.12})₁₃	577
S. Fujieda, A. Fujita and K. Fukamichi	
Exchange Bias Field Change of FeMn-NiFe Films by He Ion Irradiation Using DuoPIGatron Source	581
Y.O. Noh, C.G. Kim and C.O. Kim	
Electrodeposited Nickel Nanowire Arrey	585
B.H. Park and I.S. Kim	
Effect of Continuous Casting Parameters on Microstructure and Texture of Gold Bonding Wire for Semiconductor Packaging	589
W.Y. Kim, H.S. Kim and E.K. Chung	
Fabrication of Ta-Al-N Thin Films and its Cu Diffusion on Barrier Properties	593
Y.Z. Li and J.C. Zhou	
Synthesis and Growth Mechanism of ZnO Nanoneedles Using Thermal Oxidation Upon a Plated Zn Nanocrystalline Layer	597
W. Yu and C.X. Pan	
Solventless Synthesis of Bi₂S₃ Nanowires and their Application to Solar Cells	601
Z.J. Wang, S.C. Qu, Y. Xu, Y.H. Chen, X.B. Zeng, J.P. Liu, J. Wu and Z.G. Wang	
The Improvement of Permeability and Strength in Soft Magnetic Composites Motor Core Using Spark Plasma Sintering Process	609
H.R. Cha, C.H. Yun, H.T. Son and J.I. Cho	

Thin Film Materials and Processing

IX.

Nanocrystalline Diamond Film Produced by Argon Addition in the CH₄-H₂ Microwave CVD Plasmas	615
S.J. Askari and F.X. Lu	
Improving the Properties of Sapphire by Coatings	619
L.P. Feng and Z.T. Liu	
Directed Crystallization of Amorphous Silicon Deposits on Glass Substrates	623
D.N. Lee	
Recovery of Structural and Luminescent Properties in Zinc-Implanted ZnO Films	629
S.W. Xue and X.T. Zu	
Visible-Light Photodegradation of Rhodamine B on Carbon Doped Titanium Oxide Thin Film Prepared by Atmospheric MOCVD	633
L.N. Li, J.H. Gu and Y. Zhang	
Effect of Plating Condition on the Mechanical Properties and Residual Stress of Electroplated Copper Film	637
Y.M. Ahn, Y.J. Ko, H.J. Kim, D.H. Lee, S.K. Lee and J.H. Lee	

Characterization of (Ti, Al) N Films Synthesized by Arc Ion Plating	641
S.W. Choi, Y.C. Kim, S.H. Chang, I.H. Oh and C.S. Kang	
Low-Temperature Deposition of Amorphous Carbon Films for Surface Passivation of Carbon-Doped Silicon Oxide	645
K. Yamaoka, Y. Terai, N. Okada, T. Yamaguchi, Y. Yoshizako and Y. Fujiwara	
Preparation and Characterization of Doped Nanometer TiO₂	649
L.Y. Song, Y.C. Wu and X.F. Lu	
Effect of Residual Stress on P Doped Nano-Crystalline Silicon Deposited by HWCVD Films	653
B.P. Swain	
MOCVD Growth of SiC Nanowires Aiming at the Control of their Shape	657
S. Takao, H. Kohno and S. Takeda	
Fabrication of OTFT Array with Coated Thin Film Dielectric and Printed Electrodes by Using Microcontact Printing	661
J.D. Jo, T.M. Lee, C.H. Kim, K.Y. Kim, E.S. Lee and M. Esashi	
 Amorphous and Quasicrystalline Materials, Nanocrystalline Materials	
	X.
Synthesis and Characterization of Y₃Al₅O₁₂ Nanocrystals	667
K.S. Bartwal, S. Kar, N. Kaithwas, M. Deshmukh, M. Dave, N.P. Lalla and H. Ryu	
Preparation of Nano-Particles of Metal Oxides via a Novel Solid-Liquid Mechanochemical Reaction Technology	671
D. Chen, S. Ni, G.L. Chen and Z.H. Chen	
Crystal Growth in Amorphous Binary Alloys of Zr-Ni System	675
T. Fukami, I. Noda, M. Asada, D. Okai and T. Yamasaki	
Effect of Magnetic Field on Crystallization of Fe-Based Metallic Glass	679
Y.F. Yu, B.Z. Liu, J. Zhu, Y. Chang and M. Qi	
Microstructure and Optical Properties of Fe-Doped SnO₂ Nanoparticles Synthesized by Hydrothermal Method	683
L.M. Fang and X.T. Zu	
Structural Defects and Changes in Al-Pd-Fe Crystalline Approximant	687
J.P. Wang, W. Sun and Z. Zhang	
Fabrication of Homogeneous Bulk Nanocrystalline Ni-W Alloys by an Electroforming Process	691
A. Fujii, Y. Kimoto, S. Wakayama, Y. Takigawa, T. Uesugi and K. Higashi	
Bulk Mechanical Alloying of Al/Fe Multilayer by Accumulative Roll-Bonding Process	695
T. Nakamura, H. Kitahara, J.G. Lee and N. Tsuji	
Structural and Mechanical Behaviors of Partially Devitrified Ti-Based Bulk Metallic Glass	699
C.S. Kang, J.I. Cho, C.Y. Jeong, I.H. Oh, J.S. Lee and J.S. Park	
Synthesis Behavior of La_{0.7}Ca_{0.3}MnO₃ by Hydrothermal Method	703
H.S. Im, S.M. Lee, C.G. Lee, B.H. Koo, J.B. Yoon and M.H. Jung	
Melting Liquid Joint Method of Ti(Cu)-Base Bulk Metallic Glassy Alloy	707
K.S. Son, X.M. Wang, A. Makino and A. Inoue	
Y-Shaped Carbon Nanowires Obtained from Ethanol Flames and their Growth Mechanism	711
J. Cheng, X.P. Zou, F. Li, H.D. Zhang, P.F. Ren, G. Zhu and M.F. Wang	
Comparison between Tribological Characteristics of Al-Cu-Fe-B Quasicrystalline and Mo Coatings	715
B.H. Kim and S.M. Lee	
Upsetting of Ultrafine-Grained Bulk Al-Mg Alloy Consolidated by Hydrostatic Extrusion	719
E.Z. Kim, S.I. Oh, S.M. Lee, C.Y. Yoon, H.J. Park, S.S. Kim, T.H. Choi and K.H. Na	
Glass Transition within the Cluster Variation Approximation	723
T. Mohri	
Carbon Nanotubes Obtained by ECC Technique with Cobalt Salt as Catalyst Precursor	727
H.D. Zhang, X.P. Zou, J. Cheng, F. Li, P.F. Ren, M.F. Wang and G. Zhu	
Synthesis of Carbon Nanofibers by Ethanol Catalytic Combustion Technique	731
P.F. Ren, X.P. Zou, J. Cheng, H.D. Zhang, F. Li, G. Zhu and M.F. Wang	
The Influence of Catalyst Nature on the Morphology of Multi-Directionally Grown Carbon Nanofibers	735
F. Li, X.P. Zou and J. Cheng	

Synthesis of Zr-Based Glassy Alloy Foams	739
A.K. Prasada Rao, Y.S. Oh and N.J. Kim	
Magnetic and Mechanical Properties of Fe-Co-B-Si-Nb-M (M = Al, V, Mo,) Bulk Metallic Glasses	743
O.J. Kwon, Y.K. Lee, J.J. Lee, Y.C. Kim and E. Fleury	
Fine Crystalline Phase Dispersion in Zr-Based Bulk Metallic Glass by Laser Irradiation	747
R. Ikutomo, M. Tsujikawa, M. Hino, H. Kimura, K. Yubuta and A. Inoue	
 Biomaterials, Smart Materials and Structures	
	XI.
High-Field Maxwell Stress Effect of Dielectric Actuator Based on Segmented Polyurethane	753
H.O. Lim, G.M. Bark, H. Park, H.H. Chun and N.J. Jo	
Topology Optimization of Three-Dimensional Biodegradable Polymer Multi-Layer Microstructure for Implantable Drug Controlled Release	757
R.X. Yu, H.L. Chen and X.Y. Zhou	
Evaluation of BA_p Orientation Using Mouse Models for Osteoporosis (OPG-KO) and Osteopetrosis (op/op)	761
J.W. Lee, T. Nakano, S. Toyosawa, Y. Tabata and Y. Umakoshi	
Biofunctionalization of Metal Surface by Immobilization of Poly(Ethylene Glycol) Terminated Amine	765
Y. Tanaka, Y. Matsuo, H. Saito, Y. Tsutsumi, H. Doi, T. Yoneyama, H. Imai and T. Hanawa	
Microstructure and Mechanical Properties of Hot-Pressed Co-Cr-Mo Alloy Compacts	769
Y. Sato, N. Nomura, S. Fujinuma and A. Chiba	
Effect of Co-Doping Cation on Phase Stability of Zirconia Bioceramics in Hot Water	773
S. Yuhara, Y. Takigawa, T. Uesugi and K. Higashi	
Effect of Sigma Phase in Co-29Cr-6Mo Alloy on Corrosion and Mechanical Properties	777
S. Kurosu, N. Nomura and A. Chiba	
Effect of Second Phase Particles on Phase Stability of Zirconia in Hot Water	781
T. Shibano, Y. Takigawa, T. Uesugi and K. Higashi	
Effects of Additional Elements on Structure, Mechanical Strength and Chemical Properties of Ni-Free Ti-Based Bulk Metallic Glasses for Biomaterials	785
J.J. Oak, H. Kimura and A. Inoue	
Effect of Thermo-Mechanical Processing on Texture and Elastic Modulus of Ti-Nb-Si Alloys for Biomedical Application	789
H.S. Kim, T.Y. Ra, H.J. Bang, Y.G. Yoo and W.Y. Kim	
Configuration Optimization of Truss Structures Using Harmony Search Heuristic Algorithm	793
K.S. Lee and J.K. Song	
Hydroxyapatite Formation and Protein Absorption on Triethyl Phosphate Modified Titanium Surface	797
N. Wu, J. Weng, S.X. Qu, J.X. Wang, X. Lu and B. Feng	
Preparation of Silicon-Containing Apatite Coating on Titanium	801
T. Hashimoto, A. Obata and T. Kasuga	
Ball-Like Carbon Deposits Synthesized by Catalytic Combustion	805
M.F. Wang, X.P. Zou, F. Li, J. Cheng, H.D. Zhang, P.F. Ren and G. Zhu	
Raman Spectroscopic Characterization for Carbon Nanofibers Produced by Using Ferric Chloride of Different Concentration as Catalyst Precursor	809
F. Li, X.P. Zou, J. Cheng, H.D. Zhang, P.F. Ren, G. Zhu and M.F. Wang	
Electrochemical Properties of TiN and ZrN Coated Ti-Hf Alloy	813
Y.H. Jeong, H.C. Choe, S.J. Park and Y.M. Ko	
AC Impedance Behaviors of Ti-Zr Binary Alloys for Biomaterials	817
M.Y. Oh, H.C. Choe and Y.M. Ko	
Electrochemical Characteristics of Osteoblast Cultured Ti-Ta Alloy for Dental Implant	821
W.G. Kim, H.C. Choe and Y.M. Ko	
Effects of Multi-Layered TiN/ZrN/Tooth-Ash Composite Coatings on the Surface Characteristics of Ti-(Nb, Zr, Ta, Hf) Dental Implant Alloys with Low Elastic Modulus	825
H.C. Choe and W.A. Brantley	

Fuel Cells and Hydrogen Storage Materials

XII.

Study on Electrochemical Hydrogen Storage of Multi-Walled Carbon Nanotubes L. Xie and X.Q. Li	831
Nano Composite Membranes of Sulfonated Poly(2,6-Dimethyl-1,4-Phenylene Oxide)/Poly(2,6-Diphenyl-1,4-Phenylene Oxide) Copolymer and SiO₂ for Fuel Cell Application Y.G. Jeong, H.S. Park, D.W. Seo, S.W. Choi and W.G. Kim	835
Progress on the Composite Membranes for PEM Fuel Cells H.M. Zhang	839
Investigation of PTFE-Reinforced Integral Multi-Layered Self-Humidifying Membranes for PEM Fuel Cells Application Y. Zhang and H.M. Zhang	845
Increase of Electrolysis Cell Performance by Addition of PVDF and Graphite Powder on MEA for Regenerative Fuel Cells H.K. Lee, S.W. Hong, S.W. Yang, W.M. Lee and J.M. Yoon	849
Improvement of Electrical and Thermal Properties of Epoxy Based Graphite Bipolar Plate for PEMFC H.K. Lee, S.H. Chae, J.P. Shim and S.W. Yang	853
Hydrogen Storage Properties of Mg-Al Alloy Prepared by Super Lamination Technique K. Suganuma, H. Miyamura, S. Kikuchi, N. Takeichi, K. Tanaka, H. Tanaka, N. Kuriyama, T.T. Ueda and M. Tsukahara	857
Surface Fractals and Wetting Properties of Porous Anodes Strengthened by Ni₃Al for Molten Carbonate Fuel Cell Y.S. Kim, K.H. Moon and J.H. Lim	861
Effect of Ni Coating on Hydrogenation Kinetics in Pure Mg and Mg-Mg₂Ni Eutectic Alloy M. Kusumoto and H. Saitoh	865
Synthesis and Decomposition of Pure Ca(AIH₄)₂ N. Morisaku, K. Komiya, Y.Z. Li, H. Yukawa, M. Morinaga, K. Ikeda and S. Orimo	869
Hydrogen Solubility and Resistance to Hydrogen Embrittlement of Nb-Pd Based Alloys for Hydrogen Permeable Membrane N. Watanabe, G. Zhang, H. Yukawa, M. Morinaga, T. Nambu, K. Shimizu, S. Sato, K. Morisako, Y. Matsumoto and I. Yasuda	873
Development of Environmental Cell for Gas Reaction of Nano-Size Particles K. Okudera, K. Hamada, T. Suda, N. Hashimoto and S. Ohnuki	877
Application of Open Celled Al in the Alloy Hydride System for Hydrogen Storage I.H. Kim, W.S. Lee, S.H. Ko, J.M. Jang and H.S. Kim	881
High-Pressure Synthesis of Novel Hydride in Ca-TM Systems Y. Yambe, R. Kataoka, D. Kyoi, A. Kamegawa, H. Takamura and M. Okada	885

Ecomaterials and Porous Materials

XIII.

Electronic Transport Properties of Tin-Filled Cobalt Antimonides J.Y. Jung, S.C. Ur and I.H. Kim	891
Application of Porous Concrete to a Structural Foundation in Soft Ground H.T. Kim, C.H. Yoo, J.S. Hwang and Y.J. Sim	895
Nb-NbN Cermet Film as Solar Selective Coating C. Wang, X.K. Du and T.M. Wang	899
Fabrication of Magnesium Foam by Precursor Method Using Machined Chips K. Mehara, M. Kobashi and N. Kanetake	905
Fabrication of Long Scale Aluminum Foam by Transfer Heat Foaming of Precursor E. Mizutani, M. Kobashi and N. Kanetake	909
Optimization of Heat Treatment Parameters of Mo-Free High-Cr Cast Iron Mill Balls S.M. Lee, B.H. Kim, J.S. Shin and B.M. Moon	913

Energetic Particles-Materials Interactions and Nuclear Materials

XIV.

Combustion Synthesis in Mn-Si-C-N Using Mn as a Surrogate for Am W.P. Shen, C.C. Ge, L.F. Zhang and T.Y. Pan	919
Fabrication of Monolithic UAl₂ Pellet for High-Density Nuclear Fuel K.H. Kim, J.M. Park, D.B. Lee, C.G. Chi and C.K. Kim	925
Microstructural Evolution in Cerium Dioxide Irradiated with Heavy Ions at High Temperature T. Mihara, H. Abe, T. Iwai, T. Sonoda and E. Wakai	929
First-Principles Study of Structural and Electronic Property of Pyrochlore Dy₂Sn₂O₇ Z.J. Chen, X.T. Zu and X.Q. Wang	933
Material Property of a Passive Oxide Formed on Alloy 600 D.J. Kim, H.C. Kwon, S.S. Hwang and H.P. Kim	937

Modeling and Simulation of Materials and Processes

XV.

Modeling and Simulation of Driveline Test Bench for Automotive Chassis Component System K.J. Kim, J.S. Kim, J.W. Choi, H.J. Ju, L.Y. Heon, B.I. Choi and H.J. Lee	943
Numerical Simulation of Unidirectional Solidification Process of Turbine Blade Castings J. Yu, Q.Y. Xu, B.C. Liu, J.R. Li and H.L. Yuan	947
Effect of Orifice Shape in Contour Crafting with Ceramic Material: A Simulation for Extrusion and Deposition Mechanism H.K. Kwon and K.S. Kim	953
A New Growth Kinetics in Simulation of Dendrite Growth by Cellular Automaton Method B.W. Shan, X. Lin, L. Wei and W.D. Huang	957
Numerical Simulation on Stress Fields of Lasers Braze Fusion Welding P. Dong and R.W. Li	963
Electronic State Calculation of Manganese Dioxide and Manganese-Molybdenum Oxide for Dimensionally Stable Anode B.S. Kim, D.Y. Lee, H.W. Lee and W.S. Chung	969
Solidification Behavior of AZ31 Magnesium Alloy Plate during HCC with Constant Velocity C.D. Yim, B.S. You and J.E. Lee	973
Optimization of Preform in Forging Process Using Kriging Model S.H. Oh, J.H. Park, K.H. Lee, D.H. Kang, X.G. Song, J.H. Kang and Y.C. Park	977
Springback Compensation Based on Finite Element for Multi-Point Forming in Shipbuilding J.H. Lee, J.S. Yoon, C.H. Ryu and S.H. Kim	981
Application of RBF Network for Forecasting Characteristics of In-Flight Particles by Plasma Spraying Y.Q. Gao, J.C. Fang, Z.Y. Zhao and L. Yang	985
Thermodynamic Analysis of the Ti-Zr-H Ternary Phase Diagram S. Ukita, H. Ohtani and M. Hasebe	989
Numerical Simulation and Experimental Research on Rolling Process of Conical Ring with Inner Steps X.H. Han, L. Hua and J. Lan	993
Friction Stir Weld Modeling of Aluminum Alloys J.H. Cho, S.H. Kang, K.H. Oh, H.N. Han and S.B. Kang	999
Effect of Grain Boundary Characteristics on Lattice Orientations J.H. Cho	1003
The Injection Molding Simulation of Lever Cam Ass'y Using High-Functional Polymer C.S. Hahn, S.H. Noh, D.O. Kim, Y.M. Ryu and B.S. Han	1007
Hot Tearing Prediction of Aluminum Alloy in the Casting Process S.Y. Kwak, J.W. Baek, J.I. Kim, S.M. Yoo and J.K. Choi	1011

Real-Time Simulation Measurement System for Transient Temperature of Impacting Droplet Based on the Virtual Instrument	1015
L. Yang, J.C. Fang, Z.Y. Zhao and Y.Q. Gao	
Recovery of Magnesium Oxide and Magnesium Hydroxide from the Waste Bittren	1019
S.W. Lee and J.H. Lim	
Numerical Analysis on Flow Stress of AZ61B Magnesium Alloy during Hot Compression Simulation Testing	1023
J. Peng, F.S. Pan and C.M. Song	
Structure Stability and Electronic Structure of Semiconducting Rhenium Silicide with Doping	1029
A.N. Qiu, L.T. Zhang and J.S. Wu	
Characterization of Dynamic Globularization Behavior during Hot Working of Ti-6Al-4V Alloy	1033
J.T. Yeom, J.H. Kim, N.Y. Kim, N.K. Park and C.S. Lee	
Prediction of Mechanical Properties and Microstructure Distribution of Normalized Large Marine Crankthrow	1037
M.Y. Sun, S.P. Lu, S.J. Li, D.Z. Li and Y.Y. Li	
Application of Numerical Simulation Technology on the Design of Camera Shell during Die Casting Process	1041
H. Yan, Z. Hu and T.S. Suan	
Finite Element Analysis of Cable Products for High Impaction and Fatigue Resistance with Nonlinear Material Models	1045
H.C. Yang, Y.M. Kwon, T.S. Kim and W.B. Kim	
The Effect of the Heat Flux and Temperature on Thermal Strain of Aluminum Alloy Casting Mold	1049
H.S. Yoon, Y.S. Kim and Y.K. Oh	

Materials Characterization and Evaluation

XVI.

On the Microstructure and Properties of Tungsten Heavy Alloys	1055
F. Akhtar	
Physical Property Evaluation for High Purity Niobium and Tantalum Rare Metals	1059
I.H. Kim, J.I. Lee, G.S. Choi and J.S. Kim	
High Temperature Corrosion Behaviors of Carbon Steels by A Pressurized Water	1063
S.L. Lee, M.H. Lee, J.K. Lee, J.H. Lee and Y.S. Kong	
Pulse Electroplating of Ni-P-Nano TiO₂ and ZrO₂ for Steam Generator Tube Repair	1067
K.W. Urm, S.H. Lee, W.S. Kim, C.Y. Cho and J.H. Lee	
Long Term Degradation Behavior of Impact Properties of Hydraulic Forged Superalloy 718 during Exposure at High Temperature	1071
Y.S. Song, M.R. Lee and J.T. Kim	
Natural Photo-Oxidation Degradation of Polypropylene Containing Nucleating Agent	1075
J.F. Li, R. Yang and J. Yu	
Electric Field-Induced Structural Modulation of Epitaxial PbZrTiO₃ Ferroelectric Thin Films as Studied Using X-Ray Microdiffraction	1079
C.W. Bark, S.W. Ryu, Y.M. Koo and H.M. Jang	
Photocatalytic Activity of TiO₂ Modified by Heteropolytungstate Acid	1083
J. Liu, X.M. Lü, J.M. Xie, H. Zhang and Z.J. Gu	
Application of a Temperature-Compensating FBG Sensor to Strain Measurement	1089
D.W. Jung, I.B. Kwon and N.S. Choi	
Precipitation Behavior of MN(M=V,Nb) Phase in the 7Cr-1.5Mo Ferritic Heat Resistant Steels	1093
D.S. Bae and W.S. Jung	
Dislocations in Phase-Change Ge₂Sb₂Te₅ Alloy	1097
W. Zhang, S.A. Song, H.S. Jeong, J.G. Kim and Y.J. Kim	
Explosion Bulge Test of High Strength Low Alloy Steel PFS-700 in Air and Underwater	1101
T.W. Park	

Pb(Zr_{0.95}Ti_{0.05})O₃ Powders Synthesized by PEG Modified Pechini Method: Characterization and Sintering Behavior	1105
S.J. Qiu, H.Q. Fan, X.D. Zheng, J. Chen, C. Yang and P.Y. Fang	
Nanostructural Characterization of Hydrothermally Stable γ-Alumina-Based Composite Materials by Transmission Electron Microscopy	1109
S. Fujisaki, M.H. Zahir, Y.H. Ikuhara, Y. Iwamoto and K. Kuroda	
Adhesion Promoter and Anti-Sticking Layer Effects on Adhesion Properties Using Symmetric AFM Probe	1113
H.J. Lee, S.M. Hyun, H.J. Lee, D.G. Choi, D.I. Lee and E.S. Lee	
A Study of Mechanical Behavior of Au Films by Visual Image Tracing System	1117
S.J. Lee, S.M. Hyun, S.W. Han, H.J. Lee, J.H. Kim and Y.I. Kim	
Effect of Cyclic Strain Rate on Environmental Fatigue Behaviors of SA508 Gr.1a Low Alloy Steel in 310°C Deoxygenated Water	1121
H.C. Cho, H. Jang, B.K. Kim, I.S. Kim and C.H. Jang	
Effect of Processing Conditions of Dolomite on the Antiviral Activity	1125
K. Motoike, S. Hirano, H. Yamana, T. Onda, T. Maeda and M. Hayakawa	
Fatigue Crack Growth Behaviors of AISI Type 347 Nuclear Piping Material	1129
J.H. Yoon, J.M. Lee, M.W. Kim and B.S. Lee	
Hydrazine-Dependency of Low-Alloy Steel Flow-Accelerated Corrosion in a Deoxygenated Solution at 250°C	1133
K.W. Sung, H.I. Seo, U.C. Kim and W.Y. Maeng	
Carbon Nanostructures by Using FeCl₃ as Catalyst Precursor	1137
H.D. Zhang, X.P. Zou, J. Cheng, F. Li and P.F. Ren	
The Effect of Alloy Elements on Cyclic Fatigue Behavior of Bucket Candidate Materials for USC Power Plants	1141
K.C. Kim, B.H. Kim, J.I. Suk, D.S. Kim and J.T. Kim	
Evaluation of Corrosion Fatigue Crack Propagation Characteristics of TMCP Steel in Synthetic Seawater under Cathodic Protection	1145
W.B. Kim and J.K. Paik	
Application of Continuous Indentation Technique in Thermal Power Plant	1149
D.S. Gil, Y.S. Ahn and S.K. Park	
Micro-Scratch Analysis on Adhesion between Thin Films and PES Substrate	1153
S.H. Lee, B.H. Seo and J.H. Seo	
Microstructure-Based Computational Simulation and Experimental Measurement of Stresses in Spheroidized Steels	1157
L. Che, M. Gotoh, Y. Horimoto and Y. Hirose	
Assessment of Behaviour Characteristics for Geobag Wall System Using Recycled Waste Concrete	1161
J.M. Kim, D.Y. Lee and S.Y. Oh	
Nanoindentation Characterization of Mechanical Properties of Ferrite and Austenite in Duplex Stainless Steel	1165
X.F. Wang, X.P. Yang, Z.D. Guo, Y.C. Zhou and H.W. Song	
Characterization of Solid Synthetic Fuel Derived from Physic Nut and Glycerol Waste Using Single Particle Reactivity Analysis	1171
D. Atong and V. Sricharoenchaikul	
Characteristics of Residual Stress in P92 Steel Welds	1175
K.B. Yoo, H.S. Choi, E.H. Kim and J.H. Kim	
AE Evaluation of Relationship between AE Signals and Fracture Mechanisms for the Weldment of Pressure Vessel Steel	1181
E.G. Na, S.K. Koh and D.W. Lee	
Measurement of Residual Stress in Thin-Sized Steel Wires by Using Focused Ion Beam and Digital Image Correlation Method	1187
Y.S. Yang, J.G. Bae and C.G. Park	
Thermal Crack Propagation Behavior on Nitrided H13 Hot Work Die Steel	1191
K.T. Youn, Y.M. Rhyim, J.H. Lee, C.G. Lee, D.B. Kim and Y.C. Jung	
New Compositionally-Ordered GeSi Nano Dots Fabricated with 1250 keV Electrons	1195
S.A. Song, L.I. Fedina, H.S. Baik, Y.J. Kim, Y.M. Kim, A.K. Gutakovskii and A.V. Latyshev	
High-Resolution Dynamic Analysis of the Phase Transformation in Ge₂Sb₂Te₅ Alloy	1199
S.A. Song, W. Zhang, H.S. Jeong, J.G. Kim and Y.J. Kim	

Terrace Formation of SrTiO₃ (111) Substrates for Epitaxial Thin Film Growth with Various Etching Conditions	1203
J.H. Suh, Y.S. Lee and C.G. Park	
Microstructures and Growth Characteristics of Self-Assembled InAs/GaAs Quantum Dots Investigated by Transmission Electron Microscopy	1207
H.S. Kim, J.H. Suh, C.G. Park, S.J. Lee, S.K. Noh, J.D. Song, Y.J. Park, W.J. Choi and J.I. Lee	
 Damage Evaluation and Life Assessment	
	XVII.
Distribution Characteristics of Stress Corrosion Cracks in a Retired Steam Generator	1213
S.S. Hwang, M.K. Jung, H.P. Kim and J.S. Kim	
A Study on the Evaluation of Characteristics and Useful Life Prediction of Rubber Component for Elevator Cabin	1217
C.S. Woo and H.S. Park	
The Effect of Strain Rate on the Fracture Modes of Mg Alloys	1221
G.F. Quan, D.C. Zhu, F. Yan and Z.M. Liu	
The Evaluation of the Fatigue Life in Arc Welded Parts of SAPH45 Steels Using an Acoustic Emission Method	1227
J.K. Kim, C.S. Jang and C.S. Kim	
Development of a Fretting Wear Evaluation Method in the Nuclear Fuel Fretting by Using a Wear Scar Shape	1231
Y.H. Lee and H.K. Kim	
Design of Electrical Panels of Naval Vessels for Improved Fatigue, Shock and Vibration Performance	1235
M.H. Kim, S.W. Kang, M.S. Kang, J.M. Lee, D.S. Cho, S.H. Kim and B.Y. Kang	
A New Method for Nondestructive Evaluation of Mechanical Properties Using Instrumented Indentation Technique	1239
K.W. Lee, K.H. Kim, K.H. Kim and D.I. Kwon	
Study on Assessing Safety of Materials with Defect by Thermal Image Camera	1243
K.S. Song	
Mechanical Properties of Railway Wheel for Standard Reinforcement	1247
S.J. Kwon, D.H. Lee, J.W. Seo and H.M. Hur	
Fatigue Life Evaluation of Pipe Welds in Power Plant Using Advanced Nondestructive Methods	1251
S.G. Lee, K.B. Yoo, S.K. Park and D.G. Park	
Experimental Study of Interference Factors and Finite Element Simulation on Oil-Gas Pipeline Magnetic Flux Leakage Density	1255
J. Qi	
Thermophysical Behavior of Micro Void in μ-Via of Microelectronic Substrate during Reliability Test	1261
H.S. Lee, H.J. Lee, S.C. Lim and H.C. Kwon	
Damage Index Comparison for a Composite Stiffened Panel Using Lamb Wave	1265
C.Y. Park	
Crack Initiation Factor by Impact Fretting Wear at INCONEL Alloy for Steam Generator Tube in Nuclear Power Plants	1269
C.Y. Park, J.K. Kim, T.R. Kim, S.Y. Cho and H.I. Jeon	
 Phase Transformation and Their Applications	
	XVIII.
Spherulitic Structures in Bisphenol-A Polycarbonate Crystallized at High Pressure	1275
J. Lu, I.K. Oh, R. Huang and X.L. Wang	
HRTEM Observation of α-Phase in Cu-Zn Alloy Annealed at Lower Temperature	1279
K. Kato, D. Hamatani, K. Matsuda, T. Kawabata, Y. Uetani and S. Ikeno	
Deformation and Corrosion Behavior of a High Purity Manganese Free AZ31 Magnesium Alloy	1283
E. Kakutani, M. Jotoku, A. Yamamoto and H. Tsubakino	
Effect of Cold-Rolling on Precipitation Phenomena in 316L Austenitic Stainless Steel	1287
Y. Ohnishi, A. Yamamoto, H. Tsubakino, M. Terasawa and S. Nakahigashi	

Femtosecond Laser Synthesis of High-Pressure Phases of Si	
M. Tsujino, T. Sano, N. Ozaki, O. Sakata, M. Okoshi, N. Inoue, R. Kodama and A. Hirose	1291
α Phase Forming on Surface Layer and Precipitating inside of a Ti-Mo Based Alloy Annealed in Air	
J. Song and C.Y. Xie	1295
Strain Aging of Heavily Drawn Pearlitic Steel Wires	
N. Min, Y.J. Gu and X.J. Jin	1299
Phase Changes in AISI 436L Ferritic Stainless Steel after Nitrogen Permeation Heat Treatment	
H.J. Lee, J.H. Kong, D.K. Yoo, Y.C. Park and J.H. Sung	1303
The Effects of Si on the Nucleation Kinetics of Ferrite in Dual Phase Steels	
S.H. Lee and K.J. Lee	1307
Transmission Electron Microscopy (TEM) Observations of Phase-Separations of Gamma-Prime Precipitates in Ni-Al-Fe and Ni-Si-Fe Ternary Alloys	
M. Senga, H. Kumagai, T. Moritani and M. Doi	1311

Interfaces and Surface Engineering

XIX.

ECCI Observation of Dislocation Structure Formed around an Intergranular Fatigue Crack in Copper	
Y. Kaneko, M. Ishikawa and S. Hashimoto	1317
Microstructures of Ni/Cu and Ni-Co/Cu Multilayers Produced by Electrodeposition Method	
Y. Kaneko, T. Sanda and S. Hashimoto	1321
Friction Behavior of HVOF Thermal Spray Coating of Micron Size WC-Co Powder	
T.Y. Cho, J.H. Yoon, K.S. Kim, K.O. Song, Y.K. Joo, W. Fang, S.H. Zhang, S.J. Youn, H.G. Chun and S.Y. Hwang	1325
Microstructures and Cavitation Erosion Resistance of Ni60/TiC Plasma-Clad Coating	
Y.P. Wu, P.H. Lin, Z.H. Wang, M. Cao and J.H. Hu	1329
Grain Boundary Character Distributions of Strain-Annealed 304 Stainless Steel	
X.Y. Fang, X. Zhang, H. Guo, W.G. Wang and B.X. Zhou	1335
First Principles Study on the Adsorption of Alkali Metal on C(100)(2×1)	
J.L. Nie, H.Y. Xiao, X.T. Zu and F. Gao	1341
Some Observations Regarding Erosion-Corrosion Performance of HVOF-Sprayed Cr₃C₂-NiCr and Cr₃C₂-NiCr-(25) WC-Co Coatings in Actual Boiler Environment	
M. Kaur, H. Singh and S. Prakash	1345
Joining of Aluminum Foam/Aluminum Metal by Spark Plasma Sintering Process	
Y.H. Ko, S.H. Chang, I.H. Oh, J.I. Cho and C.S. Kang	1349
The Evolution of Surface Damage in Press-Fitted Shaft According to the Bending Stress	
D.H. Lee, S.J. Kwon, J.B. Choi and Y.J. Kim	1353
Pack Boronizing of a Co-Cr-W-C Alloy	
M.H. Yeo, S.J. Kim, S.H. Bang, D.Y. Bae and K.H. Han	1357
Study on the Properties of Chromium Matrix Composite Plated with Nanosized Diamond Powders	
V.H. Nguyen, T.N. Hoang, S.C. Kwon, M. Kim and J.Y. Lee	1361