

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

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 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 L1₀-Ordered Single Crystals	221
C. Wang, K. Tanaka, K. Kishida and H. Inui	
Microstructure Evolution during Lithiation and Delithiation of Ni₃Sn₂ Anode for Lithium Secondary Batteries	225
T. Kosho, K. Kishida, K. Tanaka and H. Inui	
Crystal Structure Variation of Ru₂Si₃ 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 SrBi₂Nb₂O₉ Ceramics by Templated 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 BaBi₄Ti₄O₁₅ 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 TiB₂-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 Si₃N₄ 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	
H₂/CO₂ 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 WCp/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 SiCp/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. Kashiwara 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	
U. Ratanakamnuan, D. Atong and D. Aht-Ong	457
Influence of Annealing Atmosphere on the Mechanical and Wear Properties of Free-Cutting Phosphor Bronze Alloy	
H. Cho, B.S. Lee, H.Y. Kim and H.H. Jo	461
Grain Refinement of Mg-Y-Zn Alloy by Friction Stir Processing	
T. Morishige, M. Tsujikawa, S. Oki, M. Kamita, S.W. Chung and K. Higashi	465
Mechanical Milling of Prealloyed Cu-Cr Powders Prepared by Gas Atomization	
H.K. Yeo, S.H. Ahn and K.H. Han	469

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 Brazed 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 S.Y. Kim, Y.S. Park and J.M. Park	547
Surface Roughness of Cu-Be Alloy (C17200) Rod Alloy Produced by Horizontal Type Continuous Casting Process S.K. Lee, H.S. Lee, S.C. Lim, T.K. Jung, K.H. Kim, H.C. Kwon and W.M. Jung	551
Effects of Electric Pulse on Solidification Structure of KS282 Alloy L.J. He, J.Z. Wang, J.G. Qi and D.Q. Cang	555
Fatigue Crack Characteristics of Friction Stir Welded Aluminum Alloy Joints H.Q. Qu, M. Tsujikawa, S.W. Chung, T. Hirata, S. Oki and K. Higashi	559
Alignment of Primary Phase of a Binary Alloy during Solidification 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 Y. Zhang, P. Liu, B.H. Tian, D.M. Zhao, S.G. Jia and X.H. Cheng	569
Preparation of CaAl_2O_4: Eu^{2+} Long Persistent Blue Phosphor K.S. Bartwal, B.K. Singh and H. Ryu	573
Large Isothermal Magnetic Entropy Change after Hydrogen Absorption into $\text{La}_{0.5}\text{Pr}_{0.5}(\text{Fe}_{0.88}\text{Si}_{0.12})_{13}$ S. Fujieda, A. Fujita and K. Fukamichi	577
Exchange Bias Field Change of FeMn-NiFe Films by He Ion Irradiation Using DuoPIGatron Source Y.O. Noh, C.G. Kim and C.O. Kim	581
Electrodeposited Nickel Nanowire Arrey B.H. Park and I.S. Kim	585
Effect of Continuous Casting Parameters on Microstructure and Texture of Gold Bonding Wire for Semiconductor Packaging W.Y. Kim, H.S. Kim and E.K. Chung	589
Fabrication of Ta-Al-N Thin Films and its Cu Diffusion on Barrier Properties Y.Z. Li and J.C. Zhou	593
Synthesis and Growth Mechanism of ZnO Nanoneedles Using Thermal Oxidation Upon a Plated Zn Nanocrystalline Layer W. Yu and C.X. Pan	597
Solventless Synthesis of Bi_2S_3 Nanowires and their Application to Solar Cells Z.J. Wang, S.C. Qu, Y. Xu, Y.H. Chen, X.B. Zeng, J.P. Liu, J. Wu and Z.G. Wang	601
The Improvement of Permeability and Strength in Soft Magnetic Composites Motor Core Using Spark Plasma Sintering Process H.R. Cha, C.H. Yun, H.T. Son and J.I. Cho	609

Thin Film Materials and Processing

IX.

Nanocrystalline Diamond Film Produced by Argon Addition in the CH_4-H_2 Microwave CVD Plasmas S.J. Askari and F.X. Lu	615
Improving the Properties of Sapphire by Coatings L.P. Feng and Z.T. Liu	619
Directed Crystallization of Amorphous Silicon Deposits on Glass Substrates D.N. Lee	623
Recovery of Structural and Luminescent Properties in Zinc-Implanted ZnO Films S.W. Xue and X.T. Zu	629
Visible-Light Photodegradation of Rhodamine B on Carbon Doped Titanium Oxide Thin Film Prepared by Atmospheric MOCVD L.N. Li, J.H. Gu and Y. Zhang	633
Effect of Plating Condition on the Mechanical Properties and Residual Stress of Electroplated Copper Film Y.M. Ahn, Y.J. Ko, H.J. Kim, D.H. Lee, S.K. Lee and J.H. Lee	637

Characterization of (Ti, Al) N Films Synthesized by Arc Ion Plating S.W. Choi, Y.C. Kim, S.H. Chang, I.H. Oh and C.S. Kang	641
Low-Temperature Deposition of Amorphous Carbon Films for Surface Passivation of Carbon-Doped Silicon Oxide K. Yamaoka, Y. Terai, N. Okada, T. Yamaguchi, Y. Yoshizako and Y. Fujiwara	645
Preparation and Characterization of Doped Nanometer TiO₂ L.Y. Song, Y.C. Wu and X.F. Lu	649
Effect of Residual Stress on P Doped Nano-Crystalline Silicon Deposited by HWCVD Films B.P. Swain	653
MOCVD Growth of SiC Nanowires Aiming at the Control of their Shape S. Takao, H. Kohno and S. Takeda	657
Fabrication of OTFT Array with Coated Thin Film Dielectric and Printed Electrodes by Using Microcontact Printing J.D. Jo, T.M. Lee, C.H. Kim, K.Y. Kim, E.S. Lee and M. Esashi	661

Amorphous and Quasicrystalline Materials, Nanocrystalline Materials

X.

Synthesis and Characterization of Y₃Al₅O₁₂ Nanocrystals K.S. Bartwal, S. Kar, N. Kaithwas, M. Deshmukh, M. Dave, N.P. Lalla and H. Ryu	667
Preparation of Nano-Particles of Metal Oxides via a Novel Solid-Liquid Mechanochemical Reaction Technology D. Chen, S. Ni, G.L. Chen and Z.H. Chen	671
Crystal Growth in Amorphous Binary Alloys of Zr-Ni System T. Fukami, I. Noda, M. Asada, D. Okai and T. Yamasaki	675
Effect of Magnetic Field on Crystallization of Fe-Based Metallic Glass Y.F. Yu, B.Z. Liu, J. Zhu, Y. Chang and M. Qi	679
Microstructure and Optical Properties of Fe-Doped SnO₂ Nanoparticles Synthesized by Hydrothermal Method L.M. Fang and X.T. Zu	683
Structural Defects and Changes in Al-Pd-Fe Crystalline Approximant J.P. Wang, W. Sun and Z. Zhang	687
Fabrication of Homogeneous Bulk Nanocrystalline Ni-W Alloys by an Electroforming Process A. Fujii, Y. Kimoto, S. Wakayama, Y. Takigawa, T. Uesugi and K. Higashi	691
Bulk Mechanical Alloying of Al/Fe Multilayer by Accumulative Roll-Bonding Process T. Nakamura, H. Kitahara, J.G. Lee and N. Tsuji	695
Structural and Mechanical Behaviors of Partially Devitrified Ti-Based Bulk Metallic Glass C.S. Kang, J.I. Cho, C.Y. Jeong, I.H. Oh, J.S. Lee and J.S. Park	699
Synthesis Behavior of La_{0.7}Ca_{0.3}MnO₃ by Hydrothermal Method H.S. Im, S.M. Lee, C.G. Lee, B.H. Koo, J.B. Yoon and M.H. Jung	703
Melting Liquid Joint Method of Ti(Cu)-Base Bulk Metallic Glassy Alloy K.S. Son, X.M. Wang, A. Makino and A. Inoue	707
Y-Shaped Carbon Nanowires Obtained from Ethanol Flames and their Growth Mechanism J. Cheng, X.P. Zou, F. Li, H.D. Zhang, P.F. Ren, G. Zhu and M.F. Wang	711
Comparison between Tribological Characteristics of Al-Cu-Fe-B Quasicrystalline and Mo Coatings B.H. Kim and S.M. Lee	715
Upsetting of Ultrafine-Grained Bulk Al-Mg Alloy Consolidated by Hydrostatic Extrusion 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	719
Glass Transition within the Cluster Variation Approximation T. Mohri	723
Carbon Nanotubes Obtained by ECC Technique with Cobalt Salt as Catalyst Precursor H.D. Zhang, X.P. Zou, J. Cheng, F. Li, P.F. Ren, M.F. Wang and G. Zhu	727
Synthesis of Carbon Nanofibers by Ethanol Catalytic Combustion Technique P.F. Ren, X.P. Zou, J. Cheng, H.D. Zhang, F. Li, G. Zhu and M.F. Wang	731
The Influence of Catalyst Nature on the Morphology of Multi-Directionally Grown Carbon Nanofibers F. Li, X.P. Zou and J. Cheng	735

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

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(AlH₄)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. Kyo, 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 UAl_2 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 $\text{Dy}_2\text{Sn}_2\text{O}_7$

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

Materials Characterization and Evaluation

XVI.

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

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	
J.H. Suh, Y.S. Lee and C.G. Park	1203
Microstructures and Growth Characteristics of Self-Assembled InAs/GaAs Quantum Dots Investigated by Transmission Electron Microscopy	
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	1207

Damage Evaluation and Life Assessment

XVII.

Distribution Characteristics of Stress Corrosion Cracks in a Retired Steam Generator	
S.S. Hwang, M.K. Jung, H.P. Kim and J.S. Kim	1213
A Study on the Evaluation of Characteristics and Useful Life Prediction of Rubber Component for Elevator Cabin	
C.S. Woo and H.S. Park	1217
The Effect of Strain Rate on the Fracture Modes of Mg Alloys	
G.F. Quan, D.C. Zhu, F. Yan and Z.M. Liu	1221
The Evaluation of the Fatigue Life in Arc Welded Parts of SAPH45 Steels Using an Acoustic Emission Method	
J.K. Kim, C.S. Jang and C.S. Kim	1227
Development of a Fretting Wear Evaluation Method in the Nuclear Fuel Fretting by Using a Wear Scar Shape	
Y.H. Lee and H.K. Kim	1231
Design of Electrical Panels of Naval Vessels for Improved Fatigue, Shock and Vibration Performance	
M.H. Kim, S.W. Kang, M.S. Kang, J.M. Lee, D.S. Cho, S.H. Kim and B.Y. Kang	1235
A New Method for Nondestructive Evaluation of Mechanical Properties Using Instrumented Indentation Technique	
K.W. Lee, K.H. Kim, K.H. Kim and D.I. Kwon	1239
Study on Assessing Safety of Materials with Defect by Thermal Image Camera	
K.S. Song	1243
Mechanical Properties of Railway Wheel for Standard Reinforcement	
S.J. Kwon, D.H. Lee, J.W. Seo and H.M. Hur	1247
Fatigue Life Evaluation of Pipe Welds in Power Plant Using Advanced Nondestructive Methods	
S.G. Lee, K.B. Yoo, S.K. Park and D.G. Park	1251
Experimental Study of Interference Factors and Finite Element Simulation on Oil-Gas Pipeline Magnetic Flux Leakage Density	
J. Qi	1255
Thermophysical Behavior of Micro Void in μ-Via of Microelectronic Substrate during Reliability Test	
H.S. Lee, H.J. Lee, S.C. Lim and H.C. Kwon	1261
Damage Index Comparison for a Composite Stiffened Panel Using Lamb Wave	
C.Y. Park	1265
Crack Initiation Factor by Impact Fretting Wear at INCONEL Alloy for Steam Generator Tube in Nuclear Power Plants	
C.Y. Park, J.K. Kim, T.R. Kim, S.Y. Cho and H.I. Jeon	1269

Phase Transformation and Their Applications

XVIII.

Spherulitic Structures in Bisphenol-A Polycarbonate Crystallized at High Pressure	
J. Lu, I.K. Oh, R. Huang and X.L. Wang	1275
HRTEM Observation of α-Phase in Cu-Zn Alloy Annealed at Lower Temperature	
K. Kato, D. Hamatani, K. Matsuda, T. Kawabata, Y. Uetani and S. Ikeno	1279
Deformation and Corrosion Behavior of a High Purity Manganese Free AZ31 Magnesium Alloy	
E. Kakutani, M. Jotoku, A. Yamamoto and H. Tsubakino	1283
Effect of Cold-Rolling on Precipitation Phenomena in 316L Austenitic Stainless Steel	
Y. Ohnishi, A. Yamamoto, H. Tsubakino, M. Terasawa and S. Nakahigashi	1287

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

Interfaces and Surface Engineering

XIX.

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