

# Table of Contents

## Committees

## Preface

### Symposium A: Invited Lectures

#### New Perspectives for Wrought Magnesium Alloys

J. Bohlen, D. Letzig and K.U. Kainer 1

#### Automotive Mg Research and Development in North America

J.A. Carpenter, J. Jackman, N.Y. Li, R.J. Osborne, B.R. Powell and P.S. Sklad 11

#### State of the Art in the Refining and Recycling of Magnesium

L.F. Zhang and T. Dupont 25

#### Research and Development of Processing Technologies for Wrought Magnesium Alloys

F.S. Pan, M.B. Yang, Y.L. Ma and G.S. Cole 37

#### Overview of CAST and Australian Magnesium Research

D.H. StJohn 49

#### Development of Magnesium Alloys with High Performance

S. Kamado and Y. Kojima 55

### Symposium B: Cast Magnesium Alloys and Foundry Technologies

#### Effects of Microstructure and Partial Melting on Tensile Properties of AZ91 Magnesium Cast Alloy

T.P. Zhu, Z.W. Chen and W. Gao 65

#### Effect of Heat Treatment on the Microstructure and Creep Behavior of Mg-Sn-Ca Alloys

T.A. Leil, Y.D. Huang, H. Dieringa, N. Hort, K.U. Kainer, J. Buršík, Y. Jirásková and K.P. Rao 69

#### Creep Behaviour and Microstructure of Magnesium Die Cast Alloys AZ91 and AE42

K. Wei, L.Y. Wei and R. Warren 73

#### Growth Rate of Small Fatigue Cracks of Cast Magnesium Alloy at Different Conditions

X.S. Wang and J.H. Fan 77

#### A Cyclic Stress-Strain Constitutive Model for Polycrystalline Magnesium Alloy and its Application

X.G. Zeng, Q.Y. Wang, J.H. Fan, Z.H. Gao and X.H. Peng 81

#### Dynamic Stress-Strain Behavior of AZ91 Alloy at High-Strain Rate

G.Y. Sha, E.H. Han, Y.B. Xu and L. Liu 89

#### Microstructure Evaluate System of Semi-Solid Forming

X.P. Cui, Y.B. Liu, Z.Y. Cao, Y.F. Zhang and Q.Q. Zhang 93

#### Zr-Containing Precipitates in Mg-3wt%Nd-0.2wt%Zn-0.4wt%Zr Alloy during Solution Treatment at 540°C

P.H. Fu, L.M. Peng, H.Y. Jiang, C.Q. Zhai, X. Gao and J.F. Nie 97

#### Microstructure, Mechanical Properties, Creep and Corrosion Resistance of Mg-Gd-Y-Zr(-Ca) Alloys

S.M. He, X.Q. Zeng, L.M. Peng, X.W. Guo, J.W. Chang and W.J. Ding 101

#### Effects of Er on Microstructure and Mechanical Properties of Mg-Zn-Er-Zr Magnesium Alloys

Q.D. Wang, D.Q. Li, Q. Li and W.J. Ding 105

#### Microstructure Simulation of Die Casting AZ91D Alloy

Z.Y. Liu, Q.Y. Xu and B.C. Liu 109

#### A Novel Squeeze Casting Process for Producing Magnesium Wheels

S.Y. Xu, S.Y. Long and F.G. Li 113

#### Effective Protection of Magnesium Melt Surface from Oxidation Using HFC125-Containing Shielding Gas

G.Q. You, S.Y. Long and R.F. Li 119

#### Development of a $\tau$ -Type Mg-Zn-Al Alloy: An Investigation of the Microstructure and Solidification Characteristics

J. Zhang, F.S. Pan and Z.X. Guo 123

<b>Ultrasonic Treatment of Magnesium Alloy Melts and its Effects on Solidification Microstructures</b>	129
Z.Q. Zhang, Q.C. Le and J.Z. Cui	
<b>Microstructure Simulation of Magnesium Alloy</b>	133
Z.N. Fu, Q.Y. Xu and S.M. Xiong	
<b>Effect of Sc on Microstructures and Corrosion Properties of AZ91</b>	139
S.J. Yao, D.Q. Yi, S. Yang, X.H. Cang and W.X. Li	
<b>Microstructure of AZ91D in Different Treatment Conditions</b>	143
J. Zhang, Y.L. Tao and Z.F. Sun	
<b>Low-Cycle Fatigue Behavior of Three Die Cast Magnesium Alloys</b>	147
C.Y. Wang, Z. Liu and L.J. Chen	
<b>Compression Deformation Behavior of AZ91D Magnesium Alloy in Semi-Solid State</b>	151
M.B. Yang, F.S. Pan, L.W. Tang and H.J. Hu	
<b>Effects of CaCO<sub>3</sub> Modificator on Microstructure and Mechanical Properties of Cast AZ91 Magnesium Alloy</b>	155
Q.D. Wang, Y. Zhao and Q.H. Li	
<b>Microstructure and Mechanical Properties of Mg-Gd-Sm-Zr Alloy</b>	159
Y. Zhao, Q.D. Wang, J.H. Gu, Y. Gao and Y. Tong	
<b>Mechanical Properties and Creep Behavior of Mg-Gd-Y-Zr Alloys</b>	163
Y. Gao, Q.D. Wang, J.H. Gu, Y. Zhao and Y. Tong	
<b>Microstructure and Mechanical Properties of Low Pressure Die Cast AM50 Magnesium Alloy</b>	167
L.M. Peng, P.H. Fu, H.Y. Jiang and C.Q. Zhai	
<b>Tensile and Compressive Creep Behavior of Coarse-Grained Mg-Al-Sr Castings</b>	171
P. Zhao, Q.D. Wang, C.Q. Zhai and W.J. Ding	
<b>Influence of Cooling Rates on the Dentrite Morphology and Hardness of the Surface-Chilled Mg-10Gd-3Y Magnesium Alloy</b>	175
Y. Zhou, L.M. Peng, Q.D. Wang, J.B. Lin and W.J. Ding	
<b>Effect of Si, Sr Additions on Microstructure and Mechanical Properties of AZ91 Alloy</b>	179
S.B. Li, Z.W. Zou and S.M. Xiong	
<b>Effects of Al-Sr Master Alloys on the As-Cast Microstructure of the AZ31 Magnesium Alloys</b>	183
R.J. Cheng, A. Tang, M.B. Yang and F.S. Pan	
<b>The Microstructure and Mechanical Properties of Mg-8Zn-8Al-4RE Magnesium Alloy</b>	187
J. Wang, J.L. Wang, W.L. Xiao, Y.M. Wu and L.M. Wang	
<b>Effects of Aluminum Content on the As-Cast Microstructure and Mechanical Properties of Mg-xAl-0.7Si Based Alloys</b>	191
M.B. Yang, F.S. Pan, L. Bai and R.J. Cheng	
<b>Change of Inclusion and Mechanical Properties of Magnesium Alloy during Vacuum Melting</b>	195
J.L. Zhang, S.B. Wang, M.Z. Li, X.G. Liu and B.S. Xu	
<b>Effect of RE Content on the Fracture Behavior in Mg-Gd-Nd-Zr Alloys</b>	199
K.Y. Zheng, J. Dong, X.Q. Zeng and W.J. Ding	
<b>Microstructure and Precipitates in Mg-Zn-Y Alloys</b>	203
M. Zhang, W.Z. Zhang, G.Y. Yuan and Q.L. Zhao	
<b>Study on Electromagnetic Vibration Casting (EVC) of Magnesium Alloys</b>	207
Q.C. Le, S.J. Guo, Z.Q. Zhang, J.Z. Cui and Z.Z. Zhao	
<b>Influence of RE on Microstructure and Mechanical Properties of Mg-Li-Al Alloys</b>	211
B. Liu, M.L. Zhang and Z.Y. Niu	
<b>Effects of Non-Flux Purification on the Microstructure and Mechanical Properties of AZ31+xCa Mg Alloy</b>	217
G.H. Wu, S.H. Kang, B.S. You, C.D. Yim and J.R. Su	
<b>A Constitutive Model for Casting Magnesium Alloy Based on the Analysis of a Spherical Void Model</b>	221
B. Chen, X. Peng, X.G. Zeng, X. Wu and S. Chen	

## Symposium C: Wrought Magnesium Alloys and Processing

<b>Microstructures and Mechanical Properties of Mg-Li-Zn Alloys as Processed by ECAE</b>	225
J. Lee, J.Y. Wang, C.S. Lee and S. Lee	
<b>Microstructural Characterization and Mechanical Behavior of an Mg-9%Li-1%Zn Alloy</b>	229
C.H. Chiu, J.Y. Wang and H.Y. Wu	
<b>Effect of Grain Size on Necklace Formation of Magnesium Alloys</b>	233
A.A. Kaya, O. Duygulu, O. Yucel and D. Eliezer	
<b>Elevated Temperature Mechanical Behavior of Mg-Y-Zn Alloys</b>	237
B. Chen, D.L. Lin, X.Q. Zeng and C. Lu	
<b>Microstructures, Tensile Properties and Forming Process of AZ31 Alloy Sheets</b>	241
Y.Q. Yan, H. Zhang, Q. Chen, H. Zhong and W.P. Weng	
<b>Effect of Temperature on Microstructure and Texture during Compression of AZ31</b>	245
J. Jiang, A. Godfrey and Q. Liu	
<b>Effect of Second Phase on the Mechanical Properties of Mg-Al-Zn Alloy by Equal Channel Angular Extrusion</b>	249
W.J. Ding, L. Jin, D.L. Lin, X.Q. Zeng and D.L. Mao	
<b>Microstructure Evolution and Mechanical Properties of an AZ61 Mg Alloy through Cyclic Extrusion Compression</b>	253
L.J. Zhang, Q.D. Wang, Y.J. Chen and J.B. Lin	
<b>Effects of Extrusion on the Mechanical Properties and Damping Capacity of Mg-1.8Cu-0.5Mn Alloy</b>	257
Z.Y. Zhang, L.M. Peng, X.Q. Zeng, L. Du, L. Ma and W.J. Ding	
<b>Fracture Mechanism Analysis of Mg-9Gd-4Y-0.6Zr Alloy</b>	261
X.M. Zhang and Y. Xiao	
<b>Annealing Behavior of the Compressed AZ31 Magnesium Alloy with Different Strain</b>	267
T.M. Liu, P. Xiao, F.S. Pan and Q. Liu	
<b>Compressive Deformation of Cast AM60B Mg Alloy at Elevated Temperatures</b>	271
H.X. Cao, S.Y. Long and H.M. Liao	
<b>The Experimental Research on the Formability of Stamping of Magnesium Alloy AZ31B Sheets</b>	275
L.Y. Wang, Z.W. Lu and Y.Z. Zhao	
<b>Thermo-Mechanical Coupled Simulation of Warm Stamping of AZ31 Magnesium Alloy Sheet</b>	281
D.Y. Li, Q.F. Chang, Y.H. Peng and X.Q. Zeng	
<b>Experimental Research on Warm Deep Drawing of Magnesium Alloy Sheet by Variable Blank Holder Force Control</b>	285
Q.F. Chang, Y.H. Peng, D.Y. Li and X.Q. Zeng	
<b>Numerical Simulation of Magnesium Alloy AZ31B Sheets with Thermal Deep-Drawing Process</b>	289
Y.D. Yu and C.X. Li	
<b>Influence of Deformation on Precipitation and Recrystallization in an AZ80 Magnesium Alloy</b>	293
Q.G. Xie, P. Yang and F.E. Cui	
<b>A Preliminary Analysis on Compression Twins in Magnesium</b>	297
P. Yang, L. Meng, Q.G. Xie and F.E. Cui	
<b>Effect of Nd on Microstructures and Properties of AZ31 Wrought Mg Alloy</b>	301
W. Qiu, E.H. Han and L. Liu	
<b>Mechanical Properties of Mg-8Zn-4Al-xCa Extruded Magnesium Alloy Tube at Elevated Temperature</b>	305
B.Y. Yu, Y.Y. Li, H.W. Song, X.G. Yuan and Z. Liu	
<b>Influence of Rolling Temperature on Microstructure and Tensile Properties of AZ31 Sheets</b>	311
D.Q. Li, Q.D. Wang and W.J. Ding	
<b>Effect of Second-Phase Particles on Grain Refinement of Mg-Al-Zn Alloy during ECAE</b>	315
L. Jin, D.L. Lin, X.Q. Zeng, D.L. Mao and W.J. Ding	
<b>Effect of Cooling Rate on the Microstructure and Mechanical Properties of ZK60 Alloy</b>	319
J.B. Lin, Q.D. Wang, L.M. Peng, Y. Zhou and W.J. Ding	
<b>Microstructure and Mechanical Properties of Extruded Mg-Zn-Gd-Based Alloy Reinforced by Quasicrystals and Laves Phase</b>	323
Y. Liu, G.Y. Yuan, C. Lu and W.J. Ding	

<b>Development and Validation of Extrusion Limit Diagram for AZ31 and AM30 Magnesium Alloys</b>	
Y.X. Wang, X.Q. Zeng, W.J. Ding, A.A. Luo and A.K. Sachdev	327
<b>Warm Hydroforming of Magnesium Alloy AZ31 Sheets</b>	
S.H. Zhang, L.M. Ren, L.X. Zhou, Y.C. Xu, G. Palumbo and L.T. Ricarico	333
<b>Superplastic Behavior of an Extruded Mg-Zn-Y-Zr Alloy</b>	
W.N. Tang, D.K. Xu, R. Chen and E.H. Han	337
<b>The Fatigue Crack Propagation (FCP) Behavior of the Forged Mg-Zn-Y-Zr Alloy</b>	
D.K. Xu, W.N. Tang, L. Liu, Y.B. Xu and E.H. Han	343
<b>Texture Evolution in Rolled Mg-13wt%Li-X Alloy</b>	
L. Li, T.T. Zhou, H.X. Li, C.Q. Chen, Q.L. Wu and Q.Q. Zhang	347
<b>Annealing Process Optimization of a ME Wrought Magnesium Alloy</b>	
Y.Z. Zhao, F.S. Pan, J. Peng and J. Zhou	351
<b>Effects of Homogenization on the Formability of ZM21 Alloy</b>	
J. Peng, F.S. Pan, M. Zhou and P.D. Ding	355
<b>Status and Development of Magnesium Alloy Thin Strip Casting</b>	
P.D. Ding, B. Jiang, J. Wang and F.S. Pan	361
<b>Rolling of AZ31 Magnesium Alloy Thin Strip</b>	
B. Jiang, J. Wang, P.D. Ding, C.M. Yang and F.S. Pan	365
<b>The Influence of Zinc and Zirconium on the Microstructure of the As-Cast Magnesium Alloy ZK60</b>	
Y.L. Ma, F.S. Pan, R.L. Zuo, J. Zhang and M.B. Yang	369
<b>Hot Compression Deformation Simulation of AZ61B Magnesium Alloy</b>	
P. Xiao, T.M. Liu, J. Peng, F.S. Pan and Q. Liu	373
<b>Effect of Rolling and Annealing on the Mechanical Properties and Microstructure of AZ31 Magnesium Alloy</b>	
G.J. Huang, L.Y. Wang, G.S. Huang, F.S. Pan and Q. Liu	379
<b>Study on Solidification Microstructure of AZ31 Alloy Strips by Vertical Twin Roll Casting</b>	
J. Wang, B. Jiang, P.D. Ding, F.S. Pan and Y.G. Dai	383
<b>Superplastic Forming Limit and Instability of AZ31B Sheet</b>	
L.Y. Wang, M.J. Song and R.C. Liu	387
<b>Effects of Zn on Mechanical Properties of MZK60 Wrought Alloy</b>	
D.F. Zhang, L.P. Ren, H.J. Zhang and W. Yuang	391
<b>Phase Analysis of Al-Mn Compounds in the AZ Magnesium Alloys</b>	
C.P. Liu, F.S. Pan and W.Q. Wang	395
<b>Microstructures and Mechanical Properties of AZ31B Extruded Sheets from Different Casting Processing</b>	
Q.C. Le, Z.Q. Zhang and J.Z. Cui	399
<b>Effect of Hot Extrusion, Hard Drawing and Heat Treatment on Properties and Structure of MB5B Wrought Mg Alloy</b>	
X.G. Li, K. Zhang, Y.J. Li, X.J. Mi, B.Q. Xiong and C.L. Hu	403
<b>Effect of Temperature and Relative Humidity on Fatigue Crack Propagation Behavior of AZ61 Magnesium Alloy</b>	
R.C. Zeng, E.H. Han and W. Ke	409
<b>Effect of Nd and Y Addition on Microstructure and Mechanical Properties of Extruded Mg-Zn-Zr Alloy</b>	
Q. Li, Q.D. Wang, D.Q. Li and W.J. Ding	413

## Symposium D: Other New Mg-Based Materials and Technologies

<b>Diffusion Bonding of Magnesium, Zirconium and Titanium as Implant Material</b>	
O. Duygulu, A.A. Kaya, G. Oktay and F.Ç. Şahin	417
<b>Investigation on the Potential of Magnesium Alloy AZ31 as a Bone Implant</b>	
O. Duygulu, R.A. Kaya, G. Oktay and A.A. Kaya	421
<b>Aging Behavior of Mg-9Gd-4Y-0.6Mn Alloy</b>	
Z.Z. Deng, X.M. Zhang, Y.L. Deng, Y. Xiao and T.C. Guo	425
<b>Preparation of Amorphous Mg-Ni Alloy by Mechanical Alloying and Investigation on its Hydrogen Storage Properties</b>	
J.F. Wang, X. Liu, P.D. Ding, F.S. Pan and Y.B. Hu	429

<b>Study on the Microstructure and Mechanical Property of High Strength Mg-Nd-Zn-Zr Alloy</b>	
W.J. Ding, P.H. Fu, L.M. Peng, H.Y. Jiang and X.Q. Zeng	433
<b>On the Infiltration of Fiber Reinforced AZ91D Alloy</b>	
H.F. Zhao, L. Wang, S.L. Guo and J.Y. Su	437
<b>The Cathodic Reduction Processes of SiO<sub>2</sub> Impurity in Magnesium Electrolysis</b>	
J.N. Liu, B. Li, X.F. Song, J. Wang and J.G. Yu	439
<b>Expulsion in Resistance Spot Welding of AZ31B Magnesium Alloy</b>	
Z.D. Zhang, Y.R. Wang and D.Q. Li	443
<b>The Thermodynamics Calculation of Mg-Zn Alloy</b>	
T.M. Liu, H.Y. Zhou and F.S. Pan	447
<b>A Database Prototype of Magnesium Alloy Based on Internet</b>	
A. Tang, Z.Q. Yuan, F.S. Pan and H.D. Liu	451
<b>Microstructure and Electrochemical Properties of Mg<sub>2</sub>Ni Substituted by Al, Ti</b>	
J. Fu and Y.A. Chen	455
<b>Biocompatibility Evaluation of Magnesium-Based Materials</b>	
L.Y. Qiao, J.C. Gao, Y. Wang, S.L. Wang, S. Wu and Y. Xue	459
<b>Preparation of Mg-Sr Alloys Using Vacuum Reduction: A Thermodynamics Approach</b>	
W.D. Xie, X.D. Peng, Q.Y. Wei, H. Nie and S.C. Wang	463
<b>Study on the Process and Mechanism of Rolling-Bonding between Magnesium and Aluminum</b>	
Q.J. Wang, Q.C. Le, W.W. Zou, J.G. Chen and J.Z. Cui	467
<b>Nickel Foam Reinforced AZ91 Magnesium Alloy</b>	
K.Q. Qiu, Y.Q. Liu, Z.Y. Suo, Y.L. Ren and Z. Liu	471
<b>EXAFS Study of Annealing Effects on Mg<sub>65</sub>Cu<sub>25</sub>Gd<sub>10</sub> Metallic Glass</b>	
G.Q. Li, L.J. Zheng, Z.F. Zhang, H.X. Li, M.F. Hashmi, Q. Cai and B. He	477
<b>Interaction between Carbon Nanotube and Mg Surface: Ab-Initio Investigation</b>	
J.F. Wan, Y.Q. Fei and J.N. Wang	481
<b>Mechanical Behavior of Gas Tungsten Arc Surface Modified Composite Layer on Mg Alloy AZ31 with SiC<sub>p</sub> and Aluminum</b>	
H.Y. Jiang, W.B. Ding, X.Q. Zeng, D.H. Li and S.S. Yao	485
<b>Intermediate Phase Growth of Mg-Al Diffusion Couple under a Strong Static Magnetic Field</b>	
J. Dong, Z.F. Li, X.Q. Zeng and W.J. Ding	491
<b>Application of G-L Dislocation Model in Low Frequency Damping Capacities of AZ91D and SiCw/AZ91D Composites</b>	
Y.K. Zhang, X.S. Hu, K. Wu and M.Y. Zheng	495
<b>Processing, Microstructure and Mechanical Properties of SiCp/AZ91 Mg Matrix Composites Fabricated by Squeeze Casting</b>	
X. Qiu, X.J. Wang, M.Y. Zheng and K. Wu	499
<b>Microstructure and Mechanical Properties of New Particle-Disperse-Reinforced Mg Composite Mg- 6Al- 3B<sub>2</sub>O<sub>3</sub>- 1NaCl- 1CaCl<sub>2</sub></b>	
L.P. Bu, S. Tanaka, M. Tsushida, S. Ando and H. Tonda	503
<b>Measurement of Press Creep Stress Exponent of ZM6 Alloy at Room Temperature</b>	
Y.Y. Zhong, S.F. Xu, X.M. Zhang, T.C. Guo and Y.L. Deng	509

## Symposium E: Magnesium Corrosion and Surface Engineering

<b>Surface Modification of AZ91 Magnesium Alloy</b>	
B.L. Luan, J. Gray, L.X. Yang, W.J. Cheong and D. Shoesmith	513
<b>Magnesium Films Deposited on Different Substrates via Arc PVD Method</b>	
G. Oktay, O. Duygulu and A.A. Kaya	519
<b>Corrosion Protection of Joining Areas in Magnesium Die-Cast and Sheet Products</b>	
W.Y. Zheng, C. Derushie, J. Lo and E. Essadiqi	523
<b>Effects of Post Heat Treatment on the Interfacial Characteristics of Aluminum Coated AZ91D Magnesium Alloy</b>	
J. Zhang, Y. Wang, R.C. Zeng and W.J. Huang	529
<b>Effect of Aging on Electrochemical Behavior of T6-Treated WE54 Mg Alloy</b>	
Z.Q. Li, D.Y. Shan, W. Ke and E.H. Han	533

<b>In Situ Observation of Initial Corrosion of AZ91 Alloy with Residual Stress in Wet-Dry Conditions Using Environmental Scanning Electron Microscope</b>	537
J. Chen, J.Q. Wang, E.H. Han and W. Ke	
<b>Growth and Microstructure of Microarc Oxidation Coating on Al<sub>18</sub>B<sub>4</sub>w/AZ91 Mg Matrix Composite</b>	543
K. Wu, Y.Q. Wang and M.Y. Zheng	
<b>Effect of Pulsed High Energy Electron Beam on Surface Modification of AZ91 Magnesium Alloy</b>	547
W. Lv, H. Zhao, Z. Han and Z. Liu	
<b>Ion Implanted AZ31 Magnesium Alloy</b>	551
G.S. Wu, X.Q. Zeng, S.S. Yao and H.B. Han	
<b>Rare Earth Conversion Coating of Magnesium Alloy AZ91D</b>	555
L.Q. Bai, D. Li, M. Guo and J. Xin	
<b>Effect of Heat Treatment on Corrosion and Electrochemical Behaviors of Mg-3Nd-0.2Zn (wt.%) Magnesium Alloy</b>	559
J.W. Chang, P.H. Fu, X.W. Guo, L.M. Peng and W.J. Ding	
<b>Effect of CeCl<sub>3</sub>-Containing Flux on Microstructure and Mechanical Properties of Mg Alloy Containing Rare Earth</b>	563
W.J. Ding, G.H. Wu, B.S. You and D.Y. Chang	
<b>Effect of Strontium on Mechanical Properties and Corrosion Resistance of AZ91D</b>	567
Y. Fan, G.H. Wu and C.Q. Zhai	
<b>Application of Electrochemical Techniques to Characterization of the Corrosion Behaviors of GW63 Alloys</b>	571
X.W. Guo, J.W. Chang, S.M. He, P.H. Fu and W.J. Ding	
<b>A Comparison on Ceramic Coating Formed on AM50 Alloy by Micro-Arc Oxidation in Two Electrolytes</b>	575
H. Zhao, Z. Liu and Z. Han	
<b>Characteristics of Acoustic Emission during Fatigue of As-Rolled AZ31B Magnesium Alloy</b>	579
H.M. Zhou, J.Q. Wang, Q.S. Zang, E.H. Han and W. Ke	
<b>Comparison of Coating Properties by Two Pulse Modes on Magnesium Alloy</b>	585
R.F. Zhang, D.Y. Shan, R. Chen and E.H. Han	
<b>Establishment of a Model of Growing Anodizing Film on AZ91D Mg Alloy</b>	589
J.G. Qian, C. Wang, D. Li and Y.F. Liu	
<b>Zn Coatings on AZ91D Magnesium Alloy Prepared by Electroplating from the Electrolyte Containing SnO<sub>2</sub> sol</b>	593
W.P. Li, L.Q. Zhu and M. Li	
<b>Study on Phosphating on the Magnesium Alloys</b>	597
W. Lan, J.C. Sun, A.R. Zhou, H.D. Qiu and D.F. Zhang	
<b>Surface Modification of Magnesium with Rare Earth Conversion Films for Biomedical Protection</b>	601
J.C. Gao, Y. Xue, L.Y. Qiao, Y. Wang and Y. Zhang	

## Alloy and Composites Development

<b>Fluidity Evolution of an Al-10% B<sub>4</sub>C Metal Matrix Composite</b>	605
Z. Zhang, X.-. Chen and A. Charette	
<b>Effect of Mg Content in Matrix on Infiltration Height in Producing MgO/Al Composite by Vacuum Infiltration Method</b>	611
R. Calin and R. Citak	
<b>Modification of A3003 Alloy for Development of High Toughness Al Alloy Tube</b>	615
H. Cho, B.S. Lee and H.H. Jo	
<b>Effect of Si on As-Cast Microstructure in Quasicrystalline Al-Cu -Fe Alloy</b>	619
J.S. Zhang, Y.J. Xue, Y.J. Guo, C.X. Xu and W. Liang	
<b>Study on the Erbium Strengthened Aluminum Alloy</b>	623
Z. Nie, B.L. Li, W. Wang, T.N. Jin, H. Huang, H.M. Li, J.X. Zou and T.Y. Zuo	
<b>Microstructural Evolution in Al-Sc and Al-Sc-Zr Alloys</b>	629
Z.G. Chen, S.P. Ringer, Z.Q. Zheng and J. Zhong	
<b>Damping Properties of 6063Al/Al<sub>2</sub>O<sub>3</sub> SiO<sub>2</sub> Particle Reinforced Composites</b>	633
Y.Y. Li, Y.B. Liu and Z.Y. Cao	

<b>Microstructures and Dynamic Compression Properties of a High Reinforcement Content TiB<sub>2</sub>/Al Composite</b>	639
D.Z. Zhu, G. Wu, L.T. Jiang and G.Q. Chen	
<b>Interfacial Reaction in Al Matrix Composites Reinforced by Mg Borate Whisker</b>	643
P.L. Wu, L.D. Wang and W.D. Fei	
<b>Effect of Silicon Addition and Thermal History on the Thermal Expansion Behavior of SiC/Al Composites</b>	649
Q. Zhang, Y. Zhu, J.C. Han and G. Wu	
<b>The Influence of Interfacial and Structural Parameters on the Elastic Modulus of SiCp/6066Al Composites</b>	653
F.S. Pan, W.M. Wang, Y. Lu and S.M. Zeng	
<b>Microstructural Characterization of Sprayed Aluminum Matrix Composites Reinforced by SiC Particles</b>	657
M. Hu, H.T. Hu, Z.X. Hong, S.B. Kang and K.J. Euh	
<b>Effect of Current Density on Morphology and Corrosion Resistance of Anodized Coating on SiC<sub>p</sub>/2024 Al Composite</b>	661
C.L. He and Q.K. Cai	

## **Casting Solidification Deforming Joining and Processing**

<b>Effects of Temperature on the Weldability of Powder Metal Parts Joined by Diffusion Welding</b>	667
A. Kurt, I. Uygur and H. Ates	
<b>Microstructure and Performance in Diffusion Welded Joints of Al +5-10-15% WC<sub>p</sub> Composites</b>	671
I. Uygur	
<b>Application of Microstructure Sensitive Design to FCC Polycrystals</b>	675
H.K. Duvvuru, M. Knezevic, R.K. Mishra and S.R. Kalidindi	
<b>Coating Effect on Increasing Mechanical Property of 6061-T651 Alloy by Laser Shock Processing</b>	681
Y.K. Zhang, X.D. Ren, J.Z. Zhou and A.X. Feng	
<b>Numerical Analysis of Nano- or Micro-Crystalline Materials during ECAP by Dislocation Evolution Method</b>	687
S.R. Zhang, Q.F. Chang, D.Y. Li and Y.H. Peng	
<b>Low-Frequency Electromagnetic Field Influencing Horizontal Direct Chill Casting of Aluminum Alloy Rods</b>	691
Z.H. Zhao, J.Z. Cui and Q.F. Zhu	
<b>New Method and Experimental Study for Fast Evaluating Filling Mould Ability of Al-Si Alloy by Surface Tension</b>	697
D.Q. Shi, D.Y. Li, Q. Sun and G.L. Gao	
<b>Prediction of Fracture in Square-Cup Forming of Aluminium Alloy</b>	703
Z.Q. Yu, Z.Q. Lin and Y.Y. Yang	
<b>Numerical Modeling of Low Frequency Electromagnetic Casting of 7XXX Aluminum Alloys</b>	707
H.T. Zhang, H. Nagaum, Y.B. Zuo and J.Z. Cui	
<b>Micromechanism of Plastic Deformation on Elastic Modulus</b>	713
Z.W. Xing, J. Bao, X.C. Li and Y.Y. Yang	
<b>Homogenization Treatment of an Al-Li-Cu-Mg-Mn-Zr Alloy</b>	719
X.Y. Wei, Z.Q. Zheng, Q.N. Chen and X. Fu	
<b>Influence of Pulse Electric Current on Solidification Structures of Al-Si Alloys</b>	723
C.Y. Ban, Y. Han, Q.X. Ba and J.Z. Cui	
<b>Rheological Behavior and Thermo-Mechanical Coupling Analysis of Aluminum Continuous Roll Casting Process</b>	729
L.H. Zhan and J. Zhong	
<b>Numerical Simulation on Conform Process of Aluminum Alloy Rectangular Hollow Conductor</b>	735
P.Y. Wu, Y.C. Wu, S.S. Xie, G.J. Huang and L. Cheng	
<b>3-D Coupled Fluid-Thermal Finite Element Analysis of 3C-Style Nozzle's Fluid Field of Al Roll-Casting</b>	741
Y. Zhou, M.H. Huang, D.H. Mao and T. Liang	

<b>Friction and Wear Properties of Friction Stir Welds of 5052 Al Alloy</b>	745
X.H. Wang and K. Wang	
<b>Hot Deformation Behavior of 2519 Al Alloy during Isothermal Compression</b>	749
H.Z. Li, X.M. Zhang, M.G. Chen, Y. Liu and H. Gao	
<b>Microstructure and Grain Refining Performance of a Rapidly Solidified Al-5Ti-1B Master Alloy</b>	753
Y.F. Han, D. Shu, L. Jin, J. Wang and B.D. Sun	

## Microstructures, Textures and Properties

<b>Effect of Calcium Addition and Heat Treatment on the Al-Zn-In Alloys as Sacrificial Anode</b>	761
S. Jafarpishe, C. Dehghanian and M. Emamy	
<b>Accumulative Roll-Bonding (ARB) of Sheets of Aluminium and its Commercial Alloys AA8006 and AA5754 at Ambient and Elevated Temperatures</b>	767
M. Karlík, M. Slámová, P. Homola, P. Sláma and M. Cieslar	
<b>Overview of Recent Work on Precipitation in Al-Cu-Mg Alloys</b>	775
S.C. Wang, M.J. Starink and N. Gao	
<b>Correlation of Mechanical Properties with Defect Structure in Commercial Pure Al and Al-Mn Alloys Studied by Positron Annihilation Spectroscopy</b>	783
E.A.H. Gomaa, M. Mohsen, A.S. Taha and M.M. Mostafa	
<b>Morphological Changes and Plume Deflection Effect during Pulsed Laser Ablation Deposition of Al</b>	789
A. Perrone, L. Cultrera and S. Duhalde	
<b>Microtexture Development and Flow Stress Saturation during Triaxial Forging of an Al-3Mg-Sc(Zr) Alloy</b>	793
S. Ringeval, D. Piot and J.H. Driver	
<b>Removal of Na and Ca from Aluminum Scrap through Filtration</b>	801
H. Görner, T.A. Engh, M. Syvertsen and L.F. Zhang	
<b>Evolution of Micro-Textures within Individual Grains in Rolled Polycrystal Aluminum</b>	807
Y.L. Deng, Y. Zhang and X.M. Zhang	
<b>Investigation of Inhomogeneous Deformation on Meso-Scale with Crystal Plasticity Finite Element</b>	813
X.M. Zhang, J.G. Tang, Y.L. Deng and Z.P. Zhou	
<b>Atomic Bonding and Properties of Al-Li Alloy in Earlier Ageing Stage</b>	819
Y.J. Gao, Q.F. Mo, Y.L. Wang, I. Zhang and C.G. Huang	
<b>Study of Cu Addition on Precipitation Behaviors and Mechanical Properties in AA6082 Al-Mg-Si Alloy</b>	825
M. Jin, J. Li and G.J. Shao	
<b>Effect of a Si Additive on an Al Grain Boundary: A First-Principles Investigation</b>	829
Y. Zhang, G.H. Lu, H. Zhang, T.M. Wang, S.H. Deng and X.L. Hu	
<b>Numerical Simulation on Influence of Clearance and Friction on Wrinkling in Bending of Aluminum Alloy Rectangular Tubes</b>	833
G.Y. Zhao, Y.L. Liu and H. Yang	
<b>Small Angle X-Ray Scattering Study in Equal-Channel Angular Pressed 7055 Al Alloys</b>	839
L.J. Zheng, G.Q. Li, H.X. Li, C.Q. Chen and B.Z. Dong	
<b>Effect of Cryogenic Treatment on Mechanical Properties and Microstructures of 3102 Al-Alloy</b>	845
X. Jiang, N. Li, H. He, X.J. Zhang, C.C. Li and H. Yang	
<b>Influence of Ageing Treatment on Microstructure and Properties of 7150 Alloy</b>	849
X.G. Fan, D.M. Jiang, Q.C. Meng, H.Z. Xian and N.K. Li	
<b>Effect of Second Phases on Tensile Property in Artificial Ageing and RRA Process of Super-High Strength Aluminum Alloy</b>	855
A.L. Ning, Z.Y. Liu, C. Feng and S.M. Zeng	
<b>Effect of Minor Sc and Zr on the Fatigue Properties of Al-Mg-Mn Alloy</b>	863
Y.Y. Peng, Z.M. Yin, B. Nie and T. Wang	
<b>Aging Characteristics of 7A52 Al-Zn-Mg Alloy</b>	867
J.W. Huang, Z.M. Yin, J.F. Fang, B. Nie and T. Wang	

<b>Structure and Property of Nickel-Modified Ultrahigh Strength Al-Zn-Mg-Cu Alloy by Spray Forming</b>	871
Z.L. Li, J.X. Xie, W. Chen, J. Zhai, H.P. Ren and Y.F. Wang	
<b>Optimizing Solution Heat Treatment to Improve Mechanical Properties of Al Alloy 7055</b>	877
J.H. You, S.D. Liu, Z.B. Huang and X.M. Zhang	
<b>Prediction of Hardness of Aluminum Alloy 7055 by Quench Factor Analysis</b>	881
S.D. Liu, X.M. Zhang, Z.B. Huang and J.H. You	
<b>Shear Pressing for Grain Refinement of Al-Mg-Li Sheet</b>	885
Y.X. Du, X.M. Zhang, L.Y. Ye and Z.H. Luo	
<b>Particle-Stimulated Nucleation of Recrystallization for Grain-Size Control in 01420 Al-Li Alloy</b>	889
L.Y. Ye, X.M. Zhang, Y.X. Du and Z.H. Luo	
<b>3D FEM Simulation of Void Growth in Aluminum Single Crystals</b>	893
W.H. Liu, X.M. Zhang, J.G. Tang and Y.X. Du	
<b>Effect of Trace Element Er on Al-Mg and Al-Mg-Mn Alloys</b>	899
Z.B. Xing, Z. Nie, J.X. Zou, X.L. Ji and X.D. Wang	
<b>Investigation on Wear Resistance of Al-Si-Ti Piston Alloys Produced by Electrolysis</b>	905
J.P. Xie, J.F. Wang, A.Q. Wang, W.Y. Wang, J.W. Li and Z.X. Liu	
<b>Cracking Susceptibility and Joint Property Study of the 6061 Aluminum</b>	911
X.H. Xue, H. Du, H.L. Yu, S.F. Yang, Z.C. Deng and S.N. Lou	
<b>Grain Refinement of an Al-Cu-Mg Alloy by Microalloying and Common Thermo-Mechanical Treatment</b>	917
B.L. Wu, G.Y. Sha, Y.N. Wang, Y.D. Zhang and C. Esling	
<b>Effects of Electromagnetic Pump Casting on Microstructure and Mechanical Properties of ZLSi9Mg Casting Aluminum Alloy</b>	923
J.Z. Dang, J. Yang and J. Cheng	
<b>Microstructure and Thermal Stability of Al-Mg-Mn Alloys by Equal Channel Angular Pressing at Elevated Temperature</b>	929
J.L. Ning, D.M. Jiang, B.Y. Qian, X.G. Fan, B.Y. Zhang, J. Yu and X.M. Zhang	
<b>Morphology and Distribution of in Al-Fe Alloy under an Alternating Magnetic Field</b>	933
Y. Han, C.Y. Ban, S.J. Guo, Q.X. Ba and J.Z. Cui	
<b>Effects of Titanium Refining Methods on the Microstructure and Mechanical Properties of A356-0.1%Ti Alloys</b>	937
J.W. Li, J.P. Xie, Z.X. Liu and W.Y. Wang	
<b>Alloying Behavior of Rare-Earth Er in Al-Cu-Mg-Ag Alloy</b>	941
Y.T. Li, Z.Y. Liu, Y.B. Liu, P. Dang, Q.K. Xia and R.C. Yu	
<b>Modifying Effect of Al-Ti-C-P Master Alloy on Hypereutectic Al-Si Alloy</b>	947
C.X. Xu, L.P. Liang, B.F. Lu, Y.J. Xue, J.S. Zhang and W. Liang	
<b>Effect of Low Frequency Electromagnetic Field on Microstructures and Macro-Segregation of Direct Chill Casting Al-19.2%Si Alloys</b>	953
K. Qin and J.Z. Cui	
<b>Through-Thickness Microstructure, Texture and Strength Gradients in AA 7055 Rolled Plate</b>	957
J.Z. Chen, L. Zhen, B.Y. Zhang, Y.X. Cui and S.L. Dai	
<b>Influence of Scandium on Microstructures and Mechanical Properties of Al-Zn-Mg-Cu-Zr Alloys</b>	961
X.Y. Dai, C.Q. Xia, A.R. Wu and X.M. Peng	
<b>Evolution of Flow Stress and Microstructure in an Al-Zn-MgSeries Alloy during Hot Deformation</b>	965
J. Shen, Y.H. ShangGuan and X.D. Yan	
<b>Effect of Extrusion Temperature and Rate on Formability and Microstructure of 7075 Aluminum Alloy</b>	971
X.K. Wu, X.M. Zhang and G.C. Yuan	
<b>Characterization of Precipitation in Al-Zn-Mg-Cuand Li Containing Al-Zn-Mg-Cu Alloys after Isothermal Aging</b>	977
Z.W. Du, B.L. Shao, A.S. Liu, Z.M. Sun, X.S. Zhang, T.T. Zhou and C.Q. Chen	
<b>Observation of As-Cast Microstructure Feature of Al Sheet Used for Can Manufacturing with High Forming Properties</b>	983
G.S. Fu, H.L. Chen, W.Z. Chen and K.W. Qian	

<b>Metallographic Characterization of Porosity in A Cast Aluminum Alloy A356-T6</b>	989
G. Ran and J.E. Zhou	
<b>Microstructures and Mechanical Properties of an Al-Cu-Li-Mg-Zr Alloy Containing Zn and Mn</b>	989
Y.L. Chen, J.F. Li, Y.W. Zhang and Z.Q. Zheng	
<b>Effects of High Gradient Magnetic Fields on Solidified Structures of Non-Magnetic Metals with Different Susceptibilities</b>	995
Q. Wang, C.J. Wang, H.T. Zhang, E.G. Wang and J.C. He	
<b>Correction of Ghost in Reduced ODF with Particle Swarm Optimization Algorithm</b>	1003
J.G. Tang, X.M. Zhang, Y.L. Deng and Z.P. Zhou	
<b>HRTEM Analysis of Aging Electrolytic Low-Ti Al Alloy</b>	1009
W.Y. Wang, J.P. Xie, W. Li and Z.X. Liu	
<b>Effect of Yb Additions on Microstructures and Properties of High Strength Al-Zn-Mg-Cu-Zr Alloys</b>	1015
K.H. Chen, H.C. Fang, Z. Zhang and L.P. Huang	
<b>The Effects of Thermo-Mechanical Treatment on the Properties of 2519 Aluminum Alloy</b>	1021
G.Y. Lin, Z.F. Zhang, Q.Q. Lin and D.S. Peng	
<b>Characters of Coarse Grains Subdivisions in Rolled Polycrystalline Al</b>	1027
Q.P. Hu, Y. Zhang and Y.L. Deng	
<b>Microstructural Evolvement of Al-1.5Si-1.1Mg-0.5Cu Alloy Ingot during Homogenization Treatment</b>	1033
N. Tian, G. Zhao, C.M. Liu and L. Zuo	
<b>Performance of Electromagnetic Purification System in Continuous Twin Roll Casting of Aluminum Sheet</b>	1037
D. Shu, J. Wang and B.D. Sun	
<b>Microstructure Inhomogeneities in 2519A Aluminum Plate Penetrated by an Incendiary Projectile</b>	1043
H. Gao, X.M. Zhang, H.Z. Li and Y. Liu	
<b>Magnetically Aligned Al<sub>3</sub>Ni Phase in Al-Ni Alloys Solidified with a High Magnetic Field</b>	1049
H. Wang, Q.L. Wang, Z.M. Ren and L.G. Yan	
<b>Dynamic Recrystallization of 3104 Aluminum Alloy during Isothermal Compression Deformation at Elevated Temperatures</b>	1055
G.J. Huang, Q. Liu, L.Y. Wang and X.H. Yin	
<b>Investigation of Flow Stress Behavior and Microstructural Evolution of 7050 Al Alloy</b>	1061
Y.P. Yi, H. Chen and Y.C. Lin	
<b>Influence of Zr on the Microstructure and Mechanical Properties of an Al-Zn-Mg-Cu Alloy</b>	1065
S.J. Yang, Y.H. Xie, S.L. Dai and M.G. Yan	
<b>Tensile Properties of Large Extrusion and forgings of RS P/M Al-9Fe-1.9Mo-1.7Si Aluminum Alloy</b>	1069
P.Y. Li, W. Li, X.L. He, S.L. Dai, S.Y. Wang, H.Q. Li and H.T. Yang	
<b>Study on Microstructural Evolution and Age Hardening in High-Purity Al-Cu-Mg-Ag Alloy</b>	1077
S.L. Dai, K. Zhang, M. Huang, S.J. Yang and M.G. Yan	
<b>Flow Field and Gas-Bubble Size Analysis in Water Model for the Process of Aluminum Melt Degassing by Particle Image Velocimetry</b>	1081
R.Z. Wu, D. Shu, J. Wang, B.D. Sun and M.L. Zhang	
<b>Surface Modification and Corrosion</b>	
<b>Corrosion Behavior of Metallic Materials in Ethanol-Gasoline Alternative Fuels</b>	1087
X.Y. Nie, X. Li and D.O. Northwood	
<b>Structural Characterization and Corrosion Properties of BTESPT Silane Films on Surface of 2024-T6 Aluminium Alloy</b>	1093
M.A. Chen, X. Xie, G.F. Xu, H.Z. Li and X.M. Zhang	
<b>Effect of Pre-Rolling Reduction on Intergranular Corrosion of Aluminum Alloy 2519A</b>	1111
Y. Liu, X.M. Zhang, B. Liu, H.Z. Li and H. Gao	
<b>Influence of the Nickel on the Corrosion Behavior of Al-Mg-Sc-Zr Alloy</b>	1117
W.T. Zhao, D.S. Yan and L.J. Rong	
<b>Influence of the Nickel on the Corrosion Behavior of Al-Mg-Sc-Zr Alloy</b>	1123

<b>Thermal Stability of Nanocrystallized Surface Layer in Al-Zn-Mg Alloy by Surface Mechanical Attrition Treatment</b>	1129
J.F. Ma, L.Q. Hu, X.G. Liu and B.S. Xu	
<b>Surface Morphology and Discharge Channel Temperature Estimation of PEO Ceramic Coatings on Aluminum</b>	1135
D.J. Shen, W.C. Gu, Y.L. Wang, G.Z. Xing and P. Nash	
<b>Effects of HTCA on Microstructure and Surface Morphology of Porous Anodic Alumina Membrane</b>	1141
W.J. Zhang, Y.K. Le, H. Wang, B. Ou, J.W. Mao and J.P. Zhang	
<b>Structure and Properties of Microarc Oxidation Films on Zinc-Containing Aluminum Alloy</b>	1145
W.B. Xue, X.L. Wu, J.C. Du, X.J. Li and H. Tian	
<b>Anti-Oxidation and Anti-Corrosion Properties of Al-Si Metal Anodes</b>	1149
X.Z. Cao, Z.X. Qiu, Z.N. Shi, X.W. Hu, Y.G. Ban and Z.W. Wang	
<b>Corrosion Behavior Improvements of High Active Aluminum Alloy Anode in Alkaline Solution by Adding Inhibitors</b>	1153
S.Q. Liang, Y. Zhang, Y. Tang, S.Q. Li and X.P. Tan	
<b>Exfoliation Corrosion Behavior of 2524 Aluminum Alloy</b>	1159
S. Yang, D.Q. Yi, S.J. Yao and Y.P. Hou	

## I. Superalloy

<b>Liquation Cracking in Heat Affected Zone in Ni Superalloy Welds</b>	1163
M.C. Chaturvedi	
<b>The Future of Commercial Air Transport and Aeroengines: Challenges and Opportunities</b>	1171
T. Khan and P. Kuentzmann	
<b>French Research and Development Activities on High-Performance Superalloys for Gas Turbine Components</b>	1179
P. Caron	
<b>Atomic Partitioning of Platinum and Ruthenium in Advanced Single Crystal Ni-Based Superalloys</b>	1187
S. Tin, L. Zhang, A.P. Ofori and M.K. Miller	
<b>Effect of Ru on Microstructure of a Single Crystal Nickel-Base Superalloy</b>	1195
W.Y. Ma, Y.F. Han, S.S. Li, Y.R. Zheng and S.K. Gong	
<b>Effects of Ru Additions on the Microstructures and Stress Rupture Life of a Directionally Solidified Ni-Based Cast Superalloy</b>	1201
X.L. Han, Y.F. Han, S.S. Li and W.Y. Ma	
<b>Influence of Ru and Cr on the Heat-Treated Microstructure of Ni-Based Superalloys</b>	1207
W.B. Wang, Q. Feng, L.J. Carroll, Y.L. Wang, G.L. Chen and T.M. Pollock	
<b>Dislocation Deformation Mechanisms during Fatigue of the Nickel-Based Superalloy CMSX-4</b>	1211
C.M. Charles, G.A. Drew, S. Bagnall and C.M.F. Rae	
<b>Temperature Dependence of High-Cycle Fatigue Behavior of a Ni-Base Single Crystal Superalloy</b>	1219
Y. Liu, J.J. Yu, Y. Xu, X.F. Sun, H.R. Guan and Z.Q. Hu	
<b>Microstructure Evolution and Strain Features of a Single Crystal Nickel Base Superalloy during Tensile/Compression Creep</b>	1225
F.L. Meng, S.G. Tian, M.G. Wang, X.F. Yu, H.Q. Du, L. Shui and L. Wang	
<b>Surface Recrystallization and its Effect on Rupture Life of SRR99 Single Crystal Superalloy</b>	1229
D.L. Wang, T. Jin, S.Q. Yang, Z. Wei, J.B. Li and Z.Q. Hu	
<b>Precipitate Free Zones along Recrystallization Grain Boundaries during Creep in a Directionally Solidified Superalloy</b>	1235
L. Wang, G. Xie, J. Zhang and L.H. Lou	
<b>Influence of Aging Temperature on the Microstructure and Stress Rupture Property of DZ951 Alloy</b>	1241
P.C. Xia, J.J. Yu, X.F. Sun, H.R. Guan and Z.Q. Hu	
<b>Effect of Temperature on Formation of Borides in TLP Joint of a Kind of Nickel-Based Single Crystal Superalloy</b>	1245
J.D. Liu, T. Jin, N.R. Zhao, Z.H. Wang, X.F. Sun, H.R. Guan and Z.Q. Hu	

<b>Stress Rupture Properties of the Second Generation Single Crystal Superalloy DD6 after High Temperature Exposure</b>	1249
H.P. Jin, J.R. Li and S.Z. Liu	
<b>Isothermal Oxidation Behavior of Ni Base Superalloy DM02 for High Temperature Dies</b>	1253
Q. Li, J.X. Song, C.B. Xiao, S.Y. Qu, D.G. Wang and Y.F. Han	
<b>Effect of Alloying Elements on Microstructure and Mechanical Properties of High Temperature Die Material DM02 Alloy</b>	1257
J.X. Song, Q. Li, C.B. Xiao and Y.F. Han	
<b>Development and Characterization of Overspeed and Cyclic Behavior of Dual Grain Structure Turbine Disks</b>	1261
K.A. Green and R.C. Helmink	
<b>INCONEL Alloy 783: An Oxidation Resistant, Low Expansion Superalloy for Gas and Steam Turbine Applications</b>	1271
S.K. Mannan and S.J. Patel	
<b>Development of New Generation Turbine Disk Superalloys in the HTM21 Project</b>	1277
Y.F. Gu, C. Cui, D. Ping, H. Harada, A. Sato and J. Fujioka	
<b>High Temperature Structure Stability Study on Nb-Containing Nickel-Base Superalloys</b>	1281
X.S. Xie, J.X. Dong, M.C. Zhang and S.H. Fu	
<b>The Studies of Non-Equilibrium Grain Boundary Segregation in Ni-Base Superalloy</b>	1289
T.D. Xu, L. Zheng, M.Q. Wang and D. Qun	
<b>Investigation on Dynamic Recrystallization Behavior in Hot Deformed Superalloy Inconel 718</b>	1297
Y. Wang, W.Z. Shao, L. Zhen, L. Lin and Y.X. Cui	
<b>Degeneration of Primary MC Carbide in a Cast Ni-Base Superalloy</b>	1301
X.Z. Qin, J.T. Guo, C. Yuan, J.S. Hou and H.Q. Ye	
<b>Optimization of Nd:YAG-Laser Welding Process for Inconel 718 Alloy</b>	1305
M. Xiao, C. Poon, P. Wanjara, M. Jahazi, Z. Fawaz and P. Krimbalis	
<b>Femtosecond Laser Ablation of a Single Crystal Superalloy CMSX-4 in Different Environments</b>	1309
Q. Wen, Q. Feng, G.H. Cheng, W. Zhao and Z.Q. Sun	
<b>Research on Sheet Metal of a New Ni-Based Superalloy Prepared by EB-PVD</b>	1313
G.Q. Chen, X.H. Li, S.H. Meng, J.C. Han and Q.F. Li	
<b>Quantification of High Temperature Strength of Nickel-Based Superalloys</b>	1319
Z.L. Guo, N. Saunders, A.P. Miodownik and J.P. Schille	
<b>Optimisation of Spray Forming Ni Superalloys via Process Modelling and On-Line Monitoring</b>	1327
J.W. Mi and P.S. Grant	
<b>Interface Energy Calculation of <math>\gamma</math>-<math>\gamma'</math> in Ni-Al System Using the Cluster Variation Method</b>	1333
J.C. Wang, M. Osawa, T. Yokokawa, H. Harada and M. Enomoto	
<b>Density of Ni-Co-Al Ternary Alloys in Liquid States Measured by a Modified Pycnometric Method</b>	1339
L. Fang, F. Xiao, S.F. Zhang, L.C. Yang, L.C. Yang and Z.N. Tao	
<b>Tensile Creep Behaviors of a P-Type Structure Single Crystal Nickel-Base Superalloy</b>	1345
H.Q. Du, S.G. Tian, X.F. Yu, M.G. Wang and F.L. Meng	

## II. Titanium Alloys

<b>Phase Transformation in Binary Titanium-Base Alloys with Metals of the I, IV–VIII Groups</b>	1349
A.V. Dobromyslov	
<b>High Fugacity Hydrogen Effects in Beta-21S Titanium Alloy</b>	1355
D. Eliezer, E. Tal-Gutelmacher and L. Wagner	
<b>Finite Element Analysis on Superplastic Blow Forming of Ti-6Al-4V Multi-Sheets</b>	1361
J.H. Yoon, H.S. Lee, Y.M. Yi and Y.S. Jang	
<b>Hydrogen's Absorption/Desorption Behavior in Gaseous-Phase Charged Duplex-Annealed Ti-6Al-4V Alloy</b>	1367
E. Tal-Gutelmacher, D. Eliezer and T. Boellinghaus	
<b>Research on Semi-Solid Deformation and Forging Behavior of Ti14 Alloy</b>	1373
Y.Q. Zhao, J.F. Wei, W.L. Wu and P. Guo	

<b>Mechanical Properties and High Temperature Deformation of Beta Titanium Alloys</b>	1379
Q. Zhou, G. Itoh and M. Niinomi	
<b>Hot Deformation Behavior and Microstructure Evolution of Ti-6.5Al-1.5Zr-3.5Mo-0.3Si with an Equiaxed <math>\alpha+\beta</math> Starting Structure</b>	1383
H.Q. Chen, H.Z. Lin, L. Guo and C.X. Cao	
<b>In Situ AFM Observation of Mechanical Behavior of Beta Titanium Alloy in Nano-Indentation Test</b>	1389
X.T. Wang, H.Y. Fang and F. Yoshida	
<b>Microstructural and Mechanical Characterization of TiAl/Ti6242 Diffusion Bonds</b>	1393
X.H. Zheng, B. Dogan and K.H. Bohm	
<b>Study on Combustion Synthesis and Densification Process for Titanium Diboride and Iron Layered Materials</b>	1401
K. Wang, J.P. Liu, Z.Y. Fu, W.M. Wang, H. Wang, J.Y. Zhang, Y. Peng and Q.J. Zhang	
<b>Predeformation Effects on Shear Response and Microstructure in Pure Titanium-TA2</b>	1409
S.H. Li, F.C. Wang, C.W. Tan, Z.Y. Chen and Z. Sun	
<b>Hydrogen Behavior in GTA Welded Ti-6Al-4V and Beta-21S Aerospace Applicable Titanium Alloys</b>	1413
E. Tal-Gutelmacher, D. Eliezer and T. Boellinghaus	

### III. Structural Intermetallics

<b>A Novel Canning Technology for Forging of Gamma-TiAl Alloys</b>	1421
J. Zhang, A. Kutzsche, K. Rosenberg, C. Leyens and B. Viehweger	
<b>Mechanical Property and Elastic Modulus of Metastable Ti-Nb Based Alloys with Si Addition</b>	1427
H.S. Kim and W.Y. Kim	
<b>Influence of Rapid Solidification on the Microstructure and Mechanical Properties of NiAl-Based Near Eutectic Alloys</b>	1431
J.T. Guo, H.T. Li, K.W. Huai and G.S. Li	
<b>Study on Fracture Behavior of <math>\gamma</math>-TiAl Based Alloys</b>	1437
R. Cao, J.H. Chen and J. Zhang	
<b>Effect of Heat Treatment on Microstructure and Mechanical Properties for a <math>Ni_3Al</math> Base Single Crystal Alloy DDIC6</b>	1443
Z.G. Kong, L. Ji, S.S. Li, Y.F. Han and H.B. Xu	
<b>Microstructure Evolution of Ti-Al Peritectic System during the Initiated Stage of Directional Solidification</b>	1447
Y.Q. Su, C. Liu, X.Z. Li, J.J. Guo and H.Z. Fu	
<b>Theoretical Prediction of Ternary Site Occupancies in <math>ZrCr_2</math> and <math>NbCr_2</math> Laves Phases</b>	1451
Q. Yao, H. Xing, S. Liu and J. Sun	
<b>First-Principles Study on Initial Oxidation of NiAl(110)</b>	1455
J.M. Hu, J.X. Shang, Y. Zhang, C. Zhou and H.B. Xu	
<b>Study of Hot Deformation Characteristics of an As-Cast Ti-22Al-25Nb Alloy</b>	1461
X.B. Liang, S.Q. Li, J.W. Zhang and Y.J. Cheng	
<b>NiCr-CrAl Coating for <math>Ni_3Al</math> Base Alloy IC6AE</b>	1467
S.S. Li, C.X. Zhang, Y.W. Kang and Y.F. Han	
<b>A First Principle Study of the Effect of Nb on the Oxidation Behavior of NiTi Alloy</b>	1471
H.L. Wu, X.Q. Zhao, J. Xu, C. Zhou and H.B. Xu	
<b>Effects of Nb on the High Temperature Mechanical Properties of TiNiAl Alloys</b>	1477
G.S. Qiu, X.Q. Zhao, L.J. Meng and H.B. Xu	
<b>Effect of Mo on the Oxidation Behavior of NiTiAl Alloy</b>	1481
J. Xu, X.Q. Zhao and S.K. Gong	
<b>Effects of Cr and Al on High Temperature Oxidation Resistance of Nb-Si System Intermetallics</b>	1485
S.Y. Qu, Y.F. Han, J.X. Song and Y.W. Kang	
<b>Effect of B on the Microstructures and High Temperature Oxidation Resistance of a Nb-Si System In Situ Composite</b>	1489
A.Q. Liu, S.S. Li, L. Sun and Y.F. Han	
<b>Study on Interface Reactions between Nb-Si System In Situ Composite and Ceramics</b>	1495
J.J. Yu, S.S. Li and Y.F. Han	

## **IV. Composites PMC, CMC, MMC, C-C**

<b>Preparation and Mechanical Properties of C/C-SiC Composites</b>	1501
D.M. Zhu, H.N. Du, F. Luo and W.C. Zhou	
<b>Fabrication of AlN-SiC-TiB<sub>2</sub> Ceramics by Self-Propagating High Temperature Synthesis and Hot Isostatic Pressing</b>	1505
L.J. Zhou, Y.T. Zheng, S.Y. Du and H.B. Li	
<b>Room and Elevated Temperature Mechanical Properties of Hot-Pressed Uni-C<sub>f</sub>/SiO<sub>2</sub> Composite</b>	1509
G.H. Zhou, S.W. Wang, X.X. Huang and J.K. Guo	
<b>In Situ Composites: Effect of Intermolecular Hydrogen Bonds on Polyamide 66/TLCP Blends</b>	1515
Z. Zhang, H.J. Guo, W. He and W.X. Zhang	
<b>Effect of Needling Parameters on Mechanical Properties of C/C Composites Reinforced by Carbon Cloth</b>	1521
X.H. Zhang, H. Li, Z.B. Hao and H. Cui	
<b>Effect of Silica on the Electrical Properties of Epoxy of Phenolic Resin/Carbon Black/Silica Composite Coating</b>	1525
W. Zhang, R. Blackburn and A. Dehghani	
<b>Effects of Interphase Thickness on Damping Behavior of 2D C/SiC Composites</b>	1531
Q. Zhang, L.F. Cheng, W. Wang, X. Wei, L.T. Zhang and Y.D. Xu	
<b>Study on Tensile and High Cycle Fatigue Properties of TiC Particle Reinforced Titanium Matrix Composite</b>	1535
L.Y. Zeng, Y.Q. Zhao, X.N. Mao and Y.L. Qi	
<b>Use of WEDM in the Characterization Process of Al/2-Phase Systems Consolidated by Multilayer Cylindrical Dynamic Compaction Method</b>	1541
N.G. Alba-Baena, L.E. Murr, A. Loya-Puga and W. Salas	
<b>Effect of Ozone Treatment on the Interfacial Properties of High Modulus Carbon Fiber/Epoxy Composites</b>	1547
X.J. Zhao, W. Qin and B.L. Wang	
<b>Light Weight and High Modulus Aluminum Matrix Composite and its Application into Aerospace</b>	1551
Q.B. Ouyang, R.X. Li, W.L. Wang, G.D. Zhang and D. Zhang	
<b>Finite Element Analysis of Interfacial Debonding Damage in Fiber-Reinforced Ceramic Matrix Composites</b>	1555
C.J. Liu, Y. Zhang, D.H. Zhang and Z.P. Li	
<b>Preparation of AlN-BN Composite by Composite Powders</b>	1559
J.X. Zhang, L. Liang and J.J. Feng	
<b>Distortion Simulation of Unsymmetrical Composite Laminates Using the Finite Element Analysis Method</b>	1563
M. Li, B.Y. Zhang and X.B. Chen	
<b>Design of a Deployable Antenna Actuated by Shape Memory Alloy Hinge</b>	1567
X. Lan, J.S. Leng and S.Y. Du	
<b>Effect of Electrochemical Treatment on the Surface Structure and Tensile Strength of Carben Coated CVD SiC Fiber</b>	1571
L. Ji, N.L. Shi and R. Yang	
<b>Optimum Design, Microstructure and Mechanical Properties of Ti/Ti<sub>3</sub>Al Multi-Layered Materials</b>	1575
L. Ma, X.D. He, Z.H. Hu and Y. Sun	
<b>Studies on Thermal Property of Silica Aerogel/Epoxy Composite</b>	1581
J.P. Zhao, D.T. Ge, S.L. Zhang and X.L. Wei	
<b>Acoustic Emission Research on Thermal Shock Behaviors of Three-Dimensional C/SiC Composites in Different Environments</b>	1585
P. Fang, L.F. Cheng, L.T. Zhang, H. Mei and J. Zhang	
<b>A Finite Element Model and Experimental Verification for the Mechanical Properties of 2.5-D Braided Composites</b>	1591
W.F. Dong, Y. Li and J. Xiao	

<b>Microstructural Characterization and Properties of SiC/Al Composites for Electronic Packaging Fabricated by Pressureless Infiltration</b>	1597
Y. Cui	
<b>Optimization of Radar Absorbing Structure Using the Genetic Algorithm</b>	1603
S. Jiang, L.Y. Xing, B.T. Li and X.B. Chen	
<b>Modification of Diallyl Isophthalate with Dimethacrylate Liquid Crystalline</b>	1609
R.L. Zuo, G.Z. Liang and P.S. Chang	
<b>Reaction Mechanisms of Combustion Synthesis of <math>\text{Si}_3\text{N}_4</math> -SiC -TiN Ceramics</b>	1615
X.J. Zhang, Y.T. Zheng, J.C. Han and X.H. Yang	
<b>Microstructures and Toughening Mechanisms of <math>\text{Y}_2\text{O}_3</math> Doped <math>\text{Al}_2\text{O}_3/\text{ZrO}_2</math> Eutectic Composite Ceramics Prepared by SHS Melt-Growth Process</b>	1619
L. Zhang, Z.M. Zhao, Y.G. Song and W.G. Wang	
<b>Investigation on a Novel Low Temperature/Vacuum Bag Cure Prepreg</b>	1623
B.Y. Zhang, B.T. Li, X.B. Chen and Z.G. Zhou	
<b>Kinetics of Interfacial Reaction in <math>\text{SiC}_f/\text{Ti}6\text{Al}4\text{V}</math> Composites</b>	1627
Y.Q. Yang, X.H. Lu, X. Luo, Z.J. Ma, J.K. Li, Q. Wen and Y. Chen	
<b>Effect of Mo on Properties and Microstructure of Steel-Bonded Cemented Carbide GT35 Produced by In Situ Reduction of Ilmenite</b>	1633
Y. Wu, C.Q. Yin, Z.G. Zou, X. Wang and X.M. Li	
<b>Internal Friction Behaviors of TiNi Shape Memory Alloy Fiber/Ni Matrix Composite</b>	1637
T.Y. Xing, Y.J. Zheng and L.S. Cui	
<b>Quantitative Analysis on Fracture Mechanism of Al Melt Oxidatively Infiltrated <math>\text{SiCp}/\text{Al}_2\text{O}_3</math>-Al Composites by XPS</b>	1643
Y.Z.H. Lv and Y. Cui	
<b>Study on the Vibration of a Sandwich Beam with Smart Composites—MRF</b>	1649
B.X. Hu, G.L. Zheng and P.Q. Xia	
<b>Effects of Particle Size on Microstructure of the Matrix Alloy in Aluminum Matrix Composites</b>	1655
L.T. Jiang, G. Wu, M. Zhao, Q. Zhang, N. Kouno and H. Saito	
<b>Mechanical and Microwave Dielectric Properties of <math>\text{C}_{sf}/\text{Si}_3\text{N}_4</math> Composites</b>	1661
X.Y. Wang, F. Luo, D.M. Zhu, W.C. Zhou and H.H. Wu	
<b>Pores in PAN-Based Carbon Fiber and Effects of Pore Defects on Mechanical Properties</b>	1665
Z. Hua, Y.J. Zhong and D.F. Li	
<b>Tactile Display Based on Controllable Fluid Actuator</b>	1669
Y.J. Liu, X.R. Wu, J.S. Leng, R.I. Davidson and P.M. Taylor	
<b>Structural Optimization Design of MR Fluid Clutch</b>	1673
W.J. Meng, Z.W. Huang, Y.J. Liu, X.R. Wu and Y. Sun	
<b>In Situ Measurement on the Pressure and Resin Flow in Hot Press Process of Composites</b>	1677
Y.Z. Gu, Z.G. Zhang and M. Li	

## V. Advanced Coatings

<b>Advanced Graded Protective Coatings, Deposited by EB-PVD</b>	1681
B.A. Movchan and K.Y. Yakovchuk	
<b>Effect of Hf Addition on High Temperature Properties of Ir-Containing Alloy Coatings</b>	1689
H. Murakami, K. Kamiya, A. Yamaguchi, Y.N. Wu and S. Kuroda	
<b>A Comparison of the Mechanical Properties of RF- and DC- Sputter-Deposited Cr Thin Films</b>	1695
M.W. Park, W.W. Lee, J.G. Lee and C.M. Lee	
<b>Formation and Characterization of the Quasicrystal Films</b>	1699
X.Y. Zhou, L. He and Y.H. Liu	
<b>Suspension Development for Electrophoretic Deposition of Mullite Coating</b>	1703
G.F. Chen and J.L. Li	
<b>Oxidation Behavior and Residual Stress in Thermally Grown Oxides of Detonation and High Velocity Oxygen Fuel Sprayed NiCrAlY Coatings</b>	1707
Z.X. Chen, F.H. Yuan, S. Zhu and Z.G. Wang	
<b>Thermal Cycling and Hot-Corrosion Behavior of Plasma Sprayed Segmented Thermal Barrier Coatings</b>	1713
H.B. Guo, H. Murakami and S. Kuroda	

<b>Influences of Argon Atmosphere on Ceramic Coatings on Ti–6Al–4V Alloy by Micro-Plasma Oxidation in Different Solutions</b>	1717
G.D. Hao, Z.H. Jiang, X.H. Wu and Y.H. Cao	
<b>Development and Oxidation Resistance of Si-Modifide MCrAlY Coatings on Nb-Base Alloy</b>	1721
X.X. Li and C. Zhou	
<b>Optical Absorption Properties of Nanotitanium Dioxide Doped ZnO/Silicone Thermal Control Coating</b>	1725
W. Qin, X.H. Wu, G.M. Zhao, X.M. Lai and L.G. Zhang	
<b>Ti-N-C Films Deposited by Ion Beam Assisted MF Twin Targets Unbalanced Magnetron Sputtering</b>	1729
Y. Huang, S.N. Sun, Y.F. Wu, S.G. Ma and Y. Zhou	
<b>Microstructure Evolution of Nd<sub>2</sub>O<sub>3</sub> and Yb<sub>2</sub>O<sub>3</sub> Co-Doped YSZ Thermal Barrier Coatings during High Temperature Exposure</b>	1735
Q.L. Wei, H.B. Guo and S.K. Gong	
<b>Influence of NiCoCrAlY and Diffusion Aluminide Coating on Oxidation and Hot Corrosion of a Ni-Based Superalloy</b>	1739
D.B. Xie, S.L. Zhu, W.J. Dai and F.H. Wang	
<b>Evaluation of Tribological Properties of a Cathodic Arc Ion-Plated CrSiN Coating under Both Unlubricated and Boundary-Lubricated Conditions</b>	1747
J.H. Ouyang, T. Murakami, S. Sasaki and Y. Zhou	
<b>Electrochemical Corrosion Behaviors of Ti<sub>2</sub>AlNb with Double Glow Plasma Surface Chromized</b>	1753
W.P. Liang, Z. Xu, Q. Miao, X.P. Liu and Z.Y. He	
<b>Visible-Blind Metal-Semiconductor-Metal Structured Deep-Ultraviolet Photodetectors Using Single-Crystalline Diamond Thin Film</b>	1759
M.Y. Liao and Y. Koide	
<b>Corrosion Properties of Inconel Alloy 600 Coated by Simultaneous Aluminizing-Chromizing Process</b>	1763
A. Moosa, J.K. Ahmed and A. Hoobi	
<b>Microarc Oxidation Coatings Fabricated on Ti<sub>3</sub>Al-Based Alloy in Silicate Electrolyte</b>	1769
X.J. Li, W.B. Xue, X.L. Wu, G.A. Cheng and R.T. Zheng	
<b>Magnetron Sputtering High Temperature Mo-Al<sub>2</sub>O<sub>3</sub> Cermet Solar Selective Coatings</b>	1773
X.K. Du, C. Wang, T.M. Wang, B.L. Chen, L. Zhou and N. Ru	
<b>Hf Modified NiAl Bond Coat for Thermal Barrier Coating Application</b>	1777
L.D. Sun, H.B. Guo, H.F. Li and S.K. Gong	
<b>Effects of EB-PVD Process TGO Formation and Growth within Thermal Barrier Coatings</b>	1781
L.M. He	
<b>Long-Term Oxidation Resistance of (Ti,Al,Y)N Coatings at 800 °C</b>	1789
M.S. Li, C.J. Feng, F.H. Wang and W.T. Wu	
<b>Numerical Analysis of EB-PVD Thermal Barrier Coatings under Thermal-Mechanical Coupled Environment</b>	1795
H. Peng, H.B. Guo, C.X. Zhang and S.K. Gong	
<b>The Effects of Rare Earth Elements on Corrosion Resistance of Sol-Gel Coatings for 2024 Aluminum Alloy</b>	1801
Y. Xu, Y.J. Li and S. Li	
<b>Structure and Anti-Corrosion of Tri-Layer Ni-P Amorphous Alloy Coating Prepared in the Same Bath</b>	1805
L.Q. Zhu, Y.B. Du, Z. Xue and Y.X. Li	
<b>Study on Interfacial Characterization and Mechanical Properties of Plasma-Sprayed Tungsten Coatings</b>	1809
S.X. Song, Z.J. Zhou, J. Du and C.C. Ge	
<b>Preparation of High Silicon Steel by EB-PVD</b>	1813
X. Li, X.D. He, Y. Li and Y. Sun	
<b>Melting Temperatures of Several Oxides under Pressure</b>	1817
S. Zhang and S.S. Jia	
<b>Effects of Ti-1023 Anodized Coating on Corrosion Behavior of Ti-1023/30CrMnSiA and Ti-1023/LY12 Galvanic Couples</b>	1821
J.H. Liu, J.X. Shi, S.M. Li and J.L. Yi	

## **Superconductor Materials**

<b>Tiny Crystals Surviving above the Melting Temperature and Acting as Growth Nuclei of the High-Tc Superconductor Microstructure</b>	1827
R.F. Tournier	
<b>High-Strength Nb<sub>3</sub>Sn Wire Development for Compact Superconducting Magnets</b>	1841
K. Watanabe, S. Awaji and G. Nishijima	
<b>Development of Ag-Sheathed Bi2223 Tapes with Interfilamentary Resistive Barriers for Reducing AC Losses</b>	1849
A. Oota, R. Inada, Y. Iwata, Y. Nakamura and P.X. Zhang	
<b>Coated Conductor: Some Critical Aspects from Substrate to Device</b>	1855
P. Odier, A. Girard, Y. Cointe, S. Donet, Z.M. Yu, T. Caroff, A. Cavallaro and A. Guibadji	
<b>Artificial Nano-Scale Precipitates for Flux Pinning in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> Thin Films and Coated Conductors</b>	1865
C. Cai, J. Zhang, Y. Lu, Hänisch, R. Hühne and B. Holzapfel	
<b>Continuous Deposition of Buffer Layers for YBCO Coated Conductor Using Reactive Magnetron Sputtering</b>	1871
J. Yang, H.Z. Liu, F. Qu, H. Zhang, Q. Zhou and H.W. Gu	
<b>New Cu-Ni Substrate for Coated Conductors</b>	1877
Z.M. Yu, L. Zhou, P. Odier and P.X. Zhang	
<b>A New Series of Potential Buffer Layers for REBCO Coated Conductor</b>	1881
M.H. Pu, G. Li, X.H. Du, Y.B. Zhang, H.M. Zhou, R.P. Sun, Z.Q. Wang and Y. Zhao	
<b>Influence of Oxygen Partial Pressure on the Microstructures and Critical Current Densities of PMP-Processed YBCO Bulks with Submicron Y<sub>2</sub>BaCuO<sub>5</sub> Particles</b>	1887
S.K. Chen, L. Zhou, K.G. Wang, P.X. Zhang, Y. Feng, H.H. Wen and S.L. Li	
<b>Effect of Ultrafine Gd211 on Processing and Superconducting Properties of Gdbacuo Bulk Superconductors</b>	1893
Y.L. Jiao, L. Xiao, M.H. Zheng, X.H. Ma, X.T. Su and Q.Z. Yan	
<b>Effect of Temperature on La<sub>1.85</sub>Sr<sub>0.15</sub>CuO<sub>4</sub> Single Crystal Growth by Floating Zone Method</b>	1897
X.Q. Xiang, J.F. Qu, Y.Q. Zhang, X.L. Lu and X.G. Li	
<b>Neutron Diffraction Studies of the Zr/Nb Effects on the Nb<sub>3</sub>Sn Phase Formation of Monofilament Wires</b>	1901
J.L. Soubeyroux, C.W. Zhang, A. Sulpice, L. Zhou, X.D. Tang and R.F. Tournier	
<b>Critical and Irreversibility Temperature Study of Internal-Sn Nb<sub>3</sub>Sn Superconducting Wires</b>	1907
C.W. Zhang, A. Sulpice, J.L. Soubeyroux, R.F. Tournier, L. Zhou, X.D. Tang, C. Verwaerde and G.K. Hoang	
<b>Effect of Heat Treatment on Superconducting Properties of Pure and Ti, Zr-Doped MgB<sub>2</sub> Superconducting Wires Fabricated by In Situ PIT Method</b>	1913
G. Yan, Y.F. Lu, Y. Feng, P.X. Zhang, L. Zhou, A. Sulpice and E. Mossang	
<b>MgB<sub>2</sub> Superconducting Films Fabricated on Copper Substrate by Hybrid Physical-Chemical Vapor Deposition</b>	1919
F. Li, T. Guo, K.C. Zhang, C.P. Chen and Q.R. Feng	
<b>Transverse Compressive Stress Effects on the Critical Current of Bi-2223 Tapes</b>	1923
C.S. Li, E. Mossang, B. Bellin, A. Sulpice, A. Antonevici and P.X. Zhang	
<b>Round Multifilament Bi-2212/Ag Wire Development for High Field Magnet Applications</b>	1927
H.P. Miao, K.R. Marken, M. Meinesz, B. Czabaj and S. Hong	
<b>Finite Element Analysis of Quench Propagation Velocity in Bi-2223/Ag Superconducting Multifilamentary Tape</b>	1931
C.L. Wu and H.L. Yang	
<b>High Magnetic Field Superconducting Magnet Technology and its Applications</b>	1935
Q.L. Wang, Y. Dai, S. Song, Y. Lei, B. Zhao, H. Wang, C. He, H. Wang, L.G. Yan and L. Lin	
<b>A New HTS/PMG Maglev Design Using Halbach Array</b>	1941
Z.G. Deng, J. Zheng, H.H. Song, S.Y. Wang and J.S. Wang	
<b>Ground and Excited States of the Two and Three Dimensional Bipolaron in a Quantum Dot</b>	1945
Y.H. Ruan, G.W. Pan and Q.H. Chen	
<b>Study on the Relation between Electronic Structure and Tc for Cuprate Superconductor Systems</b>	1951
L.G. Zhang, N. Chen, B.Y. Fang and Y. Li	

<b>The Progress on Study of Isotope Effects in High T<sub>C</sub> Copper Oxide Superconductors</b>	1957
Y. Chen, X.M. Huang, J.W. Wang and X.S. Zeng	
<b>Study on the Precursory Powder for Bi-2223 Tape</b>	1961
H.L. Zheng, X.Y. Xu, X.M. Xiong, G.Q. Liu, Q.B. Hao, C.S. Li, P.X. Zhang and Y.F. Lu	
<b>Influences of Preparation Conditions on Melting and Reformation Behaviors of (Bi,Pb)-2223 Core in the Ag-Sheathed Tape</b>	1967
J.Y. Li, H.L. Zheng, J.G. Li, C.S. Li, Y.F. Lu and L. Zhou	
<b>Influence of Sheath Materials on the Strain Tolerance of Bi-2223 Superconducting Tapes</b>	1971
X.Q. Huang, Z.Y. Lu, Y.F. He, J. Sun and J.X. Wang	
<b>Bending Strain Effects on the Critical Current of Bi-2223 Superconducting Tapes by Pure Bending Method</b>	1975
Z.Y. Lu, X.Q. Huang, Y.F. He, J. Sun and J.X. Wang	
<b>HTS High Q Resonant Controller</b>	1979
J.X. Jin, C.M. Zhang, Y.G. Guo and J.G. Zhu	
<b>Study on Minimum Propagation Current of Bi-2223/Ag Superconducting Multifilament Tape</b>	1985
Z.M. Bai, C.L. Wu, H.L. Yang and J.X. Wang	
<b>Electrical Properties of a High-T<sub>c</sub> Superconductor-Polymer Compersite</b>	1989
F.G. Chang, K. Fang and G.L. Song	
<b>Research of Secondary Gel Technic to Synthesize Bi<sub>2</sub>Sr<sub>2</sub>CaCu<sub>2</sub>O<sub>y</sub> Superconductor</b>	1993
H.Z. Yang, W.S. Chen, Z.Z. Zhi, W. Wei, C.B. Zhang and Y. Qi	
<b>Influence of Processing Parameters on the Texture Formation in Powder Metallurgic Ni-5at.%W Substrate Tapes</b>	1997
S.K. Chen, C.F. Liu, P.X. Zhang and L. Zhou	
<b>Textured YBCO Films Derived from Low-Fluorine-Content Solution</b>	2003
Y.Q. Chen, G.Y. Zhao, L. Lei and D.C. Chen	
<b>Preparation of YBCO Superconducting Films by Sol-Gel Process</b>	2007
G.Y. Zhao, H.L. Zhang, R.Z. Xue, Y.Q. Chen and L. Lei	
<b>Epitaxial Growth of CeO<sub>2</sub> Buffer Layers on Both YSZ Single Crystal and Textured Ni5W Substrates by MOD Method</b>	2011
Y.X. Zhang, H. Suo, Y. Zhao, M. Liu, R. Wang, D. He, L. Ma and M.L. Zhou	
<b>Investigation Texture in Ni-W Alloy Substrates for Coated Conductors</b>	2015
Y. Zhao, H. Suo, M. Liu, D. He, Y.X. Zhang, L. Ma and M.L. Zhou	
<b>Te Substitution Effect in Low-Dimensional Superconductor NbSe<sub>2-x</sub>Te<sub>x</sub> (x = 0, 0.1, 0.2)</b>	2019
E. Ahmed, L.J. Li, C. He, H.T. Wang, J.Q. Shen and Z. Xu	
<b>Effects of Heat Treatments on the Nb<sub>3</sub>Sn Composite Strands</b>	2023
M. Liang, P.X. Zhang, X.D. Tang, J.S. Li, C.G. Li, K. Li, M. Yang, C.J. Xiao and L. Zhou	
<b>Deposition of MgB<sub>2</sub> Thin Films on Nb Substrates Using an In Situ Annealing PLD Method</b>	2027
Y. Zhao, Y.S. Wu, S.X. Dou, T. Tajima and O.S. Romanenko	
<b>Influence of Preparation Process on Microstructure, Critical Current Density and T<sub>c</sub> of MgB<sub>2</sub>/Fe/Cu Wires</b>	
Y.F. Wu, G. Yan, J.S. Li, Y. Feng, S.K. Chen, H.P. Tang, H.L. Xu, C.S. Li, P.X. Zhang and Y.F. Lu	2031
<b>Influence of Mg and B Stoichiometry on the Formation Behavior of MgB<sub>2</sub> Phase</b>	2035
S.C. Yan, G. Yan, Y.F. Lu, Y. Feng and L. Zhou	
<b>Comparative Studies of Nanoscale SiC Whisker and Si/N/C Doped MgB<sub>2</sub> Tapes</b>	2041
X.P. Zhang, Y.W. Ma, Z.S. Gao, D.L. Wang, Z.G. Yu, G. Nishijima, K. Watanabe and J.D. Guo	
<b>Effect of Thickness on Properties of MgB<sub>2</sub> Thin Films</b>	2047
C.G. Zhuang, C.P. Chen, L.L. Ding, L.P. Chen, K.C. Zhang, F. Li, Q.R. Feng and Z.Z. Gan	
<b>MgB<sub>2</sub> Films on Nb Substrate and its Bending Test</b>	2051
D. Yao, C.G. Zhuang, F. Li, Q.R. Feng and F.R. Wang	
<b>Effects of Nano-Al Doping on Superconductivity and Microstructure of MgB<sub>2</sub> Bulk Superconductors</b>	2055
F.F. Guo, Z. Xu, H.L. Xu and Y. Feng	
<b>Improvements on the Properties of the In Situ MgB<sub>2</sub>/Fe Tapes Annealed by Spark Plasma Sintering Technique</b>	2059
L. Ma, H. Suo, Y. Wang, H.X. Ma, M. Liu, Y.M. Li, Y. Zhao, Z.L. Zhang and M.L. Zhou	

<b>Effect of Pulsed Magnetic Field Processing on MgB<sub>2</sub> Superconductors</b> W.X. Li, Y. Li, M.Y. Zhu, R.H. Chen, H.M. Jin, S.X. Dou, M.J. Qin and X. Xu	2063
<b>MgB<sub>2</sub> Thick Film Grown on Silicon Carbide Substrate by Hybrid Physical-Chemical Vapor Deposition</b> F. Li, T. Guo, K.C. Zhang, L.P. Chen, C.P. Chen and Q.R. Feng	2067
<b>Solution Phase Synthesis of Superconducting La<sub>2</sub>CuO<sub>4</sub> Microspheres</b> G.Q. Zhang, X.L. Lu, J.F. Qu, W. Wang, G. Li and X.G. Li	2071
<b>The Effects of BaF<sub>2</sub> Addition on Melt-Processed YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Superconductors</b> J.Q. Feng, L. Zhou, Y.F. Lu, P.X. Zhang, X.Y. Xu, S.K. Chen and C.P. Zhang	2075
<b>Levitation Capability of a Bulk YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> with NdFeB Guideway by Two Magnetization Methods</b> J. Zheng, J. Li, Z.G. Deng, H.H. Song, S.Y. Wang and J.S. Wang	2079
<b>Crystal Growth Mechanism of YBCO Superconductors Prepared by Unidirectional Solidification Method</b> E.Z. Gao, J.S. Li, R. Hu, H.C. Kou, H.T. Cao, P.X. Zhang and L. Zhou	2085
<b>Analysis on the Ceasing Mechanism of the YBCO Crystal Growth during Melting Growth Process by Unidirectional Solidification</b> H.T. Cao, R. Hu, H.C. Kou, J.S. Li, E.Z. Gao, H.Z. Fu and L. Zhou	2091
<b>Study of the Phase Formation of Sol-Gel YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Samples in Flowing Oxygen Atmosphere</b> T. Luo, Y. Zhang and Q.R. Feng	2097
<b>Effect of Magnet Moving Speed on the Relaxation Rate of the Levitation Force for YBCO Bulk</b> X.L. Wu, W.M. Yang, S.H. Zhu, J.Z. Guo, T.N. Lu and J.L. Pei	2103
<b>Effect of the Moving Speed between Magnet and Superconductor on the Levitation Force of Single-Domain YBCO Bulk</b> S.H. Zhu, W.M. Yang, X.L. Wu, J.Z. Guo, T.N. Lu and S.B. Xi	2107
<b>Performance of Gd-Ba-Cu-O Superconductor Bulks with Ultrafine Gd<sub>2</sub>BaCuO<sub>5</sub> Powders Prepared by Low-Temperature Combustion Synthesis</b> X.H. Ma, X.T. Su, Q.Z. Yan, Y.L. Jiao, L. Xiao and C.C. Ge	2111
<b>Basic Analysis of Magnetic Field in High Temperature Bulk Superconductors</b> J.Q. Yang, G.D. Chen, X.Y. Yuan and Y.Z. Zhu	2115
<b>Ionic Cluster Effect in Suppression on Superconductivity in Doped Y123</b> P.L. Li, A.H. Wang, Y.T. Tian, X.X. Wang, Y. Ji, Y.M. Zhang, L.M. Gao and J. Zhang	2119
<b>Simultaneous Substitution of Y and Ba by Ca in YBCO</b> L. Zhang, J. Yu and H. Zhang	2123

## Functional Materials

<b>Microstructures and Mechanical Properties of Porous Ti<sub>51</sub>Ni<sub>(49-x)</sub>Mo<sub>x</sub> Shape Memory Alloys</b> H.C. Jiang and L.J. Rong	2127
<b>Structure, Magnetization and Magnetostriction of Sm(Zn<sub>1-x</sub>T<sub>x</sub>) (T=Fe, Co) Alloys</b> B.W. Wang, S.Y. Cao, W.M. Huang, L. Weng and Y. Sun	2133
<b>Effects of <math>\gamma</math>-Ray Irradiation on Structure and Properties of ZnO:Al Thin Film</b> W.W. Wang and T.M. Wang	2137
<b>Advanced Giant Magnetostrictive Alloys and Application in Actuators for Active Vibration Control</b> C.B. Jiang, L.H. Xu, T.L. Zhang and T.Y. Ma	2143
<b>Microstructure and Pseudoelasticity of Ti-Nb-Si Based Alloys with Biocompatible Alloying Elements</b> W.Y. Kim	2151
<b>Preparation and Properties of Ceramic Tiles for Heat Insulation</b> C.C. Sun, Z.J. Hu, T.Q. Li, H.B. Zhang, Z.J. Sun and Z.G. Zhang	2157
<b>Preparation of FeCoZrBCu Thin Films and their Effect of Microstructure on Magnetic Properties</b> J.P. Cui, L. Zhong and X.F. Bi	2163
<b>Magnetic and Transport Properties of Mn-Si Films Synthesized on 4H-SiC(0001) Substrates</b> W.H. Wang, F.Y. Takano, H.N. Ofuchi and H. Akinaga	2167

<b>Electrochemical Fabrication of Bi<sub>x</sub>Te<sub>1-x</sub> (0.4 ≤ x ≤ 0.7) Nanowire Arrays</b>	2171
W. Wang, J.F. Qu, X.L. Lu, G.Q. Zhang, G. Li and X.G. Li	
<b>Crystallographic Texture of MgO and its Effect on the Growth of BaTiO<sub>3</sub> Thin Films by RF Sputtering</b>	2175
L. Qiao and X.F. Bi	
<b>Sintering of β-Si<sub>3</sub>N<sub>4</sub> Powder Prepared by Self-Propagating High-Temperature Synthesis (SHS)</b>	2179
L. Bai, X.Y. Zhao and C.C. Ge	
<b>Fuzzy Dynamic Model of a Giant Magnetostrictive Actuator</b>	2183
J.Q. Mao, H.S. Ding and Y.H. Ma	
<b>Molecular Dynamics Study of the Structure in Vitreous Silica with COMPASS Force Field at Elevated Temperatures</b>	2189
Y.F. Ding, Y. Zhang, F.W. Zhang, D.H. Zhang and Z.P. Li	
<b>Study of a Ceramic Thermocouple for Al Production</b>	2195
L.C. Feng, L. Zhen, W.Z. Shao and N. Xie	
<b>Adaptive Vibration Control on Six Degree-of-Freedom Magnetostrictive Smart Structure</b>	2199
C. Li and J.Q. Mao	
<b>Magnetostriction and Hysteresis of (Tb,Dy,Ho)Fe<sub>2</sub> Alloys</b>	2205
H.B. Zhang and C.B. Jiang	
<b>The Growth Mechanism of Quasi One-Dimensional ZnO Nanostructures Synthesized by Carbon Reduction without Catalyst</b>	2209
W.C. Liu and W. Cai	
<b>Low-Temperature Sintering and Dielectric Properties of (Zn<sub>1-x</sub>Mg<sub>x</sub>)TiO<sub>3</sub></b>	2215
X. Liu, F. Gao, M. Zhao and C.S. Tian	
<b>Giant Magnetostrictive Material Actuator Based Active Vibration Control-a Modified α - LMS Algorithm</b>	2219
Z.Q. Song, S.L. Zhou, X.J. Shi and G.Q. Liang	
<b>Study of the Structure and Magnetic Properties of Fe/Cu Superlattices from First-Principles</b>	2223
S. Lu, J.X. Shang and Y. Zhang	
<b>Comparative Study of Recovery Strains in Severely Cold-Deformed NiTi</b>	2229
J.T. Li, Y.J. Zheng and L.S. Cui	
<b>Influence of Carburization on Mechanical Behaviors of NiTiCu Alloy under Dynamic Impact Loading</b>	2233
R.B. Xu, L.S. Cui and Y.J. Zheng	
<b>Fluorinated Acrylic Films: Effect of F Content on Aging and Corrosion Testing</b>	2237
T.L. Zheng, X. Wang, Y.B. Li and B.Q. Chen	
<b>Heusler Type CoNiGa Alloys with High Martensitic Transformation Temperature</b>	2241
Y.Q. Ma, C.B. Jiang, Y. Li, C.P. Wang and X.J. Liu	
<b>Design and Modal Analysis of Fast Magnetostrictive Steering Mirror</b>	2245
Y. Yong, L. Lin and L. Chao	
<b>Modeling Rate-Dependent Hysteresis for Magnetostrictive Actuator</b>	2251
Z. Zhen and J.Q. Mao	
<b>Effects of Annealing on Phase Transformation and Mechanical Behaviors of NiTi Shape Memory Alloy Ultra Thin Sheet</b>	2257
L.J. Meng, Y. Li, X.Q. Zhao and H.B. Xu	
<b>Mechanical Properties and Shape Memory Effects of TiNiNb Shape Memory Alloys with Low Niobium Content</b>	2261
L. Xiao, X.Q. Zhao, F.S. Liu and H.B. Xu	
<b>Density and Mechanical Strength of Ferrite for Inertial Gyroscope</b>	2265
Z. Yu, Z.W. Lan, K. Sun and Y. Chen	
<b>Synthesis and Low Temperature Magnetic Properties of Metal Elements Filled Polymer-Derived SiCN Ceramic Composites</b>	2269
X. Yan, X.N. Cheng, C.S. Li, R. Hauser and R. Riedel	
<b>Micro-Pore Structure and Mechanical Properties of High Temperature Self-Lubricating Biomimetic TiC/FeCrWMoV Cermets</b>	2273
Y.J. Wang and Z.M. Liu	
<b>Preparation of Green Tapes for LTCC/Cu Multilayer Substrates</b>	2279
Y. Wang, Y. Liu and J.S. Ma	

<b>Fabrication of Mo/Cu Functional Graded Material by Resistance Sintering under Ultra-High Pressure</b>	
J. Du, Z.J. Zhou, S.X. Song, Z.H. Zhong and C.C. Ge	2283
<b>Effect of Tin Additive on the Microstructure and Loss of Ferrite for Switching Mode Power Supply</b>	
K. Sun, Z.W. Lan and Z. Yu	2287

## Addendum

<b>A New Bulk Deformation Method – Cyclic Extrusion</b>	
J. Zhang	2293
<b>Temperature Measurement and Microstructure Control for Rene88DT Superalloy during Laser Rapid Forming</b>	
H. Tan, J. Chen, X. Lin, X.M. Zhao and W.D. Huang	2301
<b>The Dispersion of MWCNTs within Epoxy by Treatment with Coupling and Dispersing Agents</b>	
Y. Zhao and Y.X. Duan	2307
<b>Hot Corrosion Behavior of AlCuFeCr Quasicrystalline Coating on Titanium Alloy with the Mixture of NaCl and Na<sub>2</sub>SO<sub>4</sub> Deposit</b>	
F.F. Wang, C. Zhou, S.K. Gong and H.B. Xu	2313