

Table of Contents

Preface

Chapter 1: Amorphous and High Entropy Alloys

Microstructure of Nb-Ta-V Based Hydrogen Permeation High Entropy Alloys N.J. Wang and Y. Liu	3
Analysis of Shear Banding in Zr-Based Metallic Glass under Laser Shock Peening and Bending J. Fu, Y.H. Zhu, C. Zheng, Z. Ji and H.G. Shi	8
Fabrication and Characterization of Micro-Dent Produced by Laser Shock Peening on Zr-Based Bulk Metallic Glass Y.H. Zhu, J. Fu, C. Zheng and Z. Ji	14
Damage Characteristics of Zr-Based Metallic Glasses under Helium Ions Irradiation F.J. Li, J.S. Xing, Z.Q. Zhao and B.C. Wei	22
Effect of DC Pulse Patterns on Spark Plasma Sintering Process of $[\text{Fe}_{0.8}\text{Co}_{0.2}\text{B}_{0.05}\text{Si}_{0.2}]_{96}\text{Nb}_4$ Bulk Metallic Glass Y.T. Sun, H.L. Shao and Z.K. Zhao	28
Effect of Ta Addition on Structural Evolution and Mechanical Properties of the $\text{CoFeNi}_2\text{W}_{0.5}$ High Entropy Alloy L. Jiang, Y. Dong, H. Jiang, Y.P. Lu, Z.Q. Cao and T.J. Li	34
Microstructure Evolution and Hardness of $\text{AlCrFeNi}_x\text{Mo}_{0.2}$ High Entropy Alloy Y. Dong, D.X. Qiao, H.Z. Zhang, Y.P. Lu, T.M. Wang and T.J. Li	40
Investigation of Viscosity Measurements of Molten Fe-Si-B-Nb Alloys H.J. Zheng, Q.J. Sun, X. Zhao and L.N. Hu	45
Effect of Annealing Treatment on the Microstructure and Magnetic Properties of $\text{FeSiBAlNi}(\text{C}, \text{Ce})$ High Entropy Alloys J. Xu, Z.F. Zhao and Y. Wang	52
Glass Formation and Thermal Stability of Mechanically Alloyed $\text{Al}_{75}\text{Ni}_{10}\text{Ti}_{10}\text{Zr}_5$ Amorphous Composites with Graphene Addition T.Y. Wang, Z.X. Sun, L.X. Zhang and Y. Wang	58
Effect of Mn Contents on the Phase Transition of the High Entropy Alloy Prepared by Laser Cladding S.D. Liu, C.Y. Peng, M.X. Ma, W.J. Liu and W.M. Zhang	64
Influence of Annealing Treatment on Microstructure and Mechanical Properties of Fe-Cu-Si-Al Amorphous Composites Y.C. Zhao, W.L. Ma, X.P. Yuan, Z.P. Zhao, M.Y. Huang, S.Z. Kou and C.Y. Li	71
Microstructure and Mechanical Properties of a New Refractory $\text{HfNbSi}_{0.5}\text{TiVZr}$ High Entropy Alloy Y. Zhang, Y. Liu, Y.X. Li, X. Chen and H.W. Zhang	76
Correlation between Electrical Resistivity and the Structural Evolution of Zr-Based Bulk Amorphous Alloys J.C. Gu, X.T. Han and Q. Chen	85
Core Losses Separation of Amorphous Alloy Core S.H. Li, L.J. Li, D.R. Li and Z.C. Lu	91
Research on Laser Brazing Applying Al-Based Amorphous Ribbon J.H. Song	95
Liquid Phase Separation and Dual Glassy Structure Formation of Designed Zr-Ce-Co-Cu Alloys Z.Y. Wang, J. He, B.J. Yang, H.X. Jiang, J.Z. Zhao, T.M. Wang and H.R. Hao	100

Chapter 2: Magnesium Alloys

Tension-Compression Asymmetry in an Extruded Mg Alloy AZ31: Texture and Strain Rate Effects	
L.L. Chang and L.P. Chi	109
Effects of Microstructures on the Tensile Properties and Corrosion Resistance of High-Purity Magnesium	
X.H. Feng, H.M. Jia, Y.T. Liu, Y.D. Li, W.R. Li, T. Zhang and Y.S. Yang	114
Microstructure and Corrosion Behavior of Hot Compressed AZ31B Magnesium Alloy Joint	
Y.J. Chu, X.C. Han, Z.H. Yang and X.Q. Li	121
Compressive Behavior at Ambient Temperature of ZK60-xDy Magnesium Alloys	
Z.H. Huang, W.J. Qi and J. Xu	128
Effects of Filtration Purification and Solution Treatment on the Microstructure and Mechanical Property of AZ91D Alloy	
W.H.B. Liu, W.J. Qi and Z.H. Huang	134
Evolution of Microstructure and Mechanical Properties of ZK80 Mg Alloy during Net-Shape Pressing of Extruded Perform	
F.H. Cao, Y.G. Chen and S.Y. Long	142
Microstructures and Tensile Properties of Mg-6Gd-3Y-1.4Zn-0.4Zr Alloys	
C. Huang, C.M. Liu and B.Z. Wang	148
Influence of a Trace Alloying of Ag on the Ageing Behavior and Mechanical Properties of AZ80M Magnesium Alloys	
W.B. Sun and C.M. Liu	154
Microstructural Evolution of a Fine-Grained Mg-Y-Nd Alloy during Superplastic Deformation	
G.H. Cao and D.T. Zhang	162
Effects of Briquette Forming Condition on the Extraction of Magnesium from Calcined Magnesite via Vacuum Aluminothermic Reduction	
X.F. Li, Y.Q. Liu, H. Li, Y. Jiang and H.W. Ma	168
Effect of Heat Treatment on Microstructures and Properties of AZ40M Alloy	
L. Lai, K. Zhang, M.L. Ma and G.L. Shi	173
Dynamic Recrystallization Behavior of Mg-Gd-Y-Zr Alloy during Hot Compression	
S.L. Yu, Y.H. Gao, C.M. Liu and H.C. Xiao	181
Mechanical Behavior and Microstructure Evolution of Mg-Gd-Y-Zn-Zr Alloy during Multipass Hot Compression Deformation	
J.M. Yu, X.B. Li, Z.M. Zhang, Q. Wang, Y.J. Wu and J. Wang	186
Effect of Solution Treatment on Corrosion Resistance of the Biodegradable NZ20K Alloy	
Y. Fei, X.B. Zhang, Z.X. Ba and Z.Z. Wang	196
Preparation and Characterization of As-Cast and As-Extruded Mg-1Mn-0.6Ce-3Y Alloy	
G.H. Su, X.R. Liu and Z.Y. Cao	203
Low Temperature Co-Fired ZnNb₂O₆ Dielectric Ceramic Doped by B₂O₃	
J. Yang, J.K. Yan, J.H. Du, F.C. Yan, K.Y. Kang, J.H. Yi and G.Y. Gan	209

Chapter 3: High Performance Titanium Alloys

Stress Induced Martensitic Transformation in Ti-1023 Alloys	
L.L. Chang and J.P. Liu	219
Effect of β Annealing and near β Zone Hot Deformation on the Microstructure and Texture of TC18 Alloy	
Y.M. Cui, W.W. Zheng, F. Zhang and A.X. Sha	226
Thermal Stability and Mechanical Properties of Ti-15-3 Titanium Alloy	
Q.R. Wang, X.W. Li, A.X. Sha, X.Q. Zhao and Y.Q. Zhu	232
Microstructural Development around Crater in Commercial Pure Titanium	
Y.C. Li, B.L. Li, T.B. Wang, Z.Q. Wang and Z. Nie	238
Cellular Automata Simulation on Dynamic Recrystallization of TA16 Alloy during Hot Deformation	
F. Han, R.Q. Chen, C.H. Yang, X.M. Li and D.C. Wang	245
Microstructural Evolution during Forging of Ti-6Al-4V Alloy	
L.Y. Tang, J.S. Li, H.C. Kou, X. Yan, B. Tang and X.Y. Xue	251

Effect of Alpha Phase Characteristics on the High Cycle Fatigue Properties of Ti-6Al-4V Alloy	
X. Yan, H.C. Kou, F.B. Han, B. Tang, L.J. Zhang and J.S. Li	259
Deformation Behavior of Ti-6Al-4V-0.1B Alloy Loaded under High Strain Rates	
Y. Yu, Q. Gao, X.J. Mi, S.X. Hui and W.J. Ye	266
Effect of Hot Forging Strain Rate on the Microstructure and Mechanical Properties of TC4-DT Titanium Alloy	
G.Q. Shang, X.N. Wang, Y. Fei, J. Li, L.W. Zhu and Z.S. Zhu	271
Dynamic Compression Properties of Low-Cost Ti-6Al-4V Plates	
R. Liu, S.X. Hui, W.J. Ye, Y. Yu, Y.Y. Fu and X.Y. Song	276
Effects of Stress-Relief Annealing on the Residual Stress and the Microstructure of TA15 Welded Joint	
T. Ma, X.Y. Song, W.J. Ye, S.X. Hui and R. Liu	281
Microstructure and Tensile Properties of Boron-Doped Beta Titanium Alloy	
R. Chen, Y. Yu, S.X. Hui and W.J. Ye	287
Microstructure and Mechanical Properties of TiNiFe Shape Memory Alloys with Different Compositions	
Y.F. Li, X. Feng, X.J. Mi, X.Q. Yin and X.Y. Kang	295
Influence of Shot Peening on the Surface Hardness of TC11 Titanium Alloy after High Cycle Fatigue Test	
Y.L. Liang, L.Q. Zhong and Z. Yan	302
Characterization of Hot Deformation Behavior of Ti-4.5Al-3V-2Mo-2Fe Titanium Alloy	
L.W. Zhu, X.N. Wang, Y. Fei, J. Li and Z.S. Zhu	309
Influence of Upsetting and Drawing Times on the Microstructure and Microtexture of TC4 Titanium Alloy	
M.Q. Yan, K. Li, Y.H. Wang and W.F. Zhang	317
Microstructure and Mechanical Properties of Powder Metallurgy Ti-22Al-24Nb-0.5Mo Alloys Joints with Electron Beam Welding	
J. Wu, L. Xu, R.P. Guo, Z.G. Lu, Y.Y. Cui and R. Yang	321
Influence of Cooling Rate on Phase Transformation of a $\alpha+\beta$ Titanium Alloy	
Y. Fei, X.N. Wang, G.Q. Shang, J. Li, L.W. Zhu and Z.S. Zhu	327
Hot Compressive Deformation Behavior of TC4-DT Titanium Alloy	
J. Li, L.W. Zhu, X.N. Wang, Y. Fei, G.Q. Shang and Z.S. Zhu	332
Influence of Electric Pulse Heat Treatment on the Dynamic Mechanical Behavior of TC6 Titanium Alloy	
C.H. Pei, Z.X. Li, Q.B. Fan and J.S. Ding	340
Study on Rotating Bending Fatigue Property of Ti65 Titanium Alloy	
X. Wang, S.Q. Li and J.N. Liu	347
Low Cycle Fatigue Behavior of TA29 Titanium Alloy at Different Temperatures	
J. Li, J.M. Cai, R. Duan and X. Huang	353
Prediction of High Cycle Fatigue Property of Ti-6Al-4V Alloy Using Artificial Neural Network	
Y.M. Zhao, H.C. Kou, W. Wu, Y. Deng, B. Tang and J.S. Li	360
Effects of Aging Temperature on the Microstructure and Mechanical Properties of a Ti₂AlNb Based Alloy	
Y. Zhou, J.X. Cao, X. Huang, B. Wang and G.B. Mi	368
Effects of Cold-Rolling Reduction on Microstructure and Mechanical Properties of Ti₅₀Zr₃₀Nb₁₀Ta₁₀ Alloy	
M.L. Li, Y.J. Geng, C. Chen, S.J. Pang and T. Zhang	376

Chapter 4: Advanced Metal Matrix Composites

Wetting Behavior and Interface Characteristic of Ti_{32.8}Zr_{30.2}Ni_{5.3}Cu₉Be_{22.7}/Ti6Al4V	
D.M. Liu, Z.W. Zhu, Z.K. Li, H.M. Fu, H. Li, A.M. Wang, H.W. Zhang, H. Zhang and Z.Q. Hu	385
Investigation of Interface in SiC Fiber Reinforced TC17 Titanium Alloy Matrix Composites	
H. Huang, H. Li, M. Wen, M.J. Wang, C. Xie and X. Huang	391

Fabrication and Strengthening Mechanisms of Al/WC Particles Composite Prepared by Accumulative Roll Bonding	
C.Y. Liu, H.J. Jiang, C.X. Wang, Y.P. Li and K. Luo	397
Microstructural Difference between Unreinforced Canning of TC17 Alloy and the Matrix in SiC_p/TC17 Composite Fabricated by HIP Process	
M.J. Wang, H. Huang, S.Q. Li, H. Li, C. Xie and X. Huang	402
Hot Deformation Behavior and Processing Map of 25%SiC_p/2009A1 Composite	
S.H. Wei, Y.Q. Liu, J.H. Nie, T. Zuo, Z.L. Ma and J.Z. Fan	409
Influence of HA and Environmental Factors to the Damping Performance of HA/Mg-3Zn-0.5Zr Composites	
C. You, H.R. Zheng, D.D. Jin, L. Wang, M.M. Wang and M.F. Chen	416
Enhanced Tensile Properties of Graphene-Al5083 Composite Prepared by Hot Pressing and Hot Extrusion	
H.P. Zhang, W.L. Xiao, K. Ameyama, G.F. Ji, M.J. Yang and C.L. Ma	424
Hot Deformation Behaviors and Microstructure Evolution of SiC_p/Al Composites	
S.M. Hao, J.P. Xie, L.B. Li, A.Q. Wang, W.Y. Wang and J.W. Li	430
Investigation of the Effect of Argon Arc Welding Parameters on Properties of Thin Plate of <i>In Situ</i> Titanium Matrix Composites	
J.W. Mao, Y.F. Han, W.J. Lu and L.Q. Wang	436
Ambient-Temperature and High-Temperature Tensile Properties of Investment Casted Titanium Matrix Composites with B₄C Additions	
J.H. Wang, G.F. Huang, J.X. Li, J.W. Mao, X.L. Guo and W.J. Lu	443

Chapter 5: High Temperature Structural Materials

Structures and Properties of Welding Seams in Nickel-Base Superalloys	
C. Yu, Q.Q. Zhang, H.Y. Wu, R. Wei, M.Y. Li and Z.R. Li	455
Hot-Gas Corrosion Resistance of DD9 Single Crystal Superalloy	
Z.X. Shi, S.Z. Liu, X.G. Wang and J.R. Li	463
Stress Rupture Properties and Fracture Behavior of DD6 Single Crystal Superalloy	
Z.X. Shi, S.Z. Liu, M. Han and J.R. Li	468
Effect of Degree of Order on Hydrogen Diffusion in (Fe,Ni)₃V Alloys	
Y.X. Chen, X.B. Hou and T. Chen	475
Effect of Long-Term Aging on the Evolution of γ' and TCP Phases of a Ni₃Al Based Single Crystal Superalloy	
X. Zhou, J. Xiao, Y.L. Pei, S.S. Li and S.K. Gong	482
Partition Behavior of Ni between γ and γ' Phases in the New Type Co-Based Superalloys	
S.Y. Yang and S.H. Wang	488
The Effect of Remelting on the Microstructure and Mechanical Properties of a Nickel Superalloy	
Z.W. Zhang, Y.J. Niu, J.J. Tian, N. An, Y. Gao, C. Wang and S.F. Shi	492
Effect of Carbon on the Microstructural Evolution and Thermal Fatigue Behavior of a Ni-Base Superalloy	
N. An, Y. An, Q. Fan, Z.M. Fu, Z.R. Li and Y.Y. Zhang	497
Effects of Alloying Elements on the Properties of Ni-Mo-Cr Superalloys with Low Thermal Expansion	
M. Yu, K.H. Cai and Z.R. Li	503
Studies on Microstructure and Properties by Mass Smelting for Directionally Solidified Superalloy	
Y. Gao, Y.J. Niu, S.F. Shi, J.J. Tian, C. Wang, Z.W. Zhang and N. An	508
Research on Effect of Alloy Elements on Equilibrium and Properties of Ni-Cr-Co Type Nickel-Based Superalloy	
Q.Q. Zhang, M.Y. Li, R. Wei, H.Y. Wu and Z.R. Li	513
Influence of Carbides on Stress Rupture Property of a Ni-Base Superalloy	
Z.R. Li and N. An	520
Decreasing Defects of Center Porosity and Improving Secondary Pipe Castings for Superalloy Ingots by Dynamics Methods	
C. Wang, Z.R. Li, Y.J. Niu, S.F. Shi and N. An	526

The Microstructure and Mechanical Properties of Heat Treated NiCr20TiAl Superalloy R. Wei, H.Y. Wu, Q.Q. Zhang, M.Y. Li, Y. Cao and Z.R. Li	531
Effect of Sulfur on the Hot Plasticity of GH625 Superalloy H.Y. Wu, Z.M. Fu, Q.Q. Zhang, M.Y. Li, R. Wei, Y. Cao and Z.R. Li	537
Effect of Al on the Microstructure and Mechanical Properties of HK40 Heat-Resistant Steel at High Temperature Y. Zhang, Y.F. Mei, N. Zhou, Z.Q. Liu and Y.F. Sun	542
Effect of Microcast-X Fine Grain Casting on the Microstructure and Mechanical Properties of K492M Alloy at 760°C P.P. Hu, Q.D. Gai, Q. Li and X. Tang	549
Role of Cobalt in the Microstructural Stability of Single Crystal Superalloys J.Y. Chen, Q. Li, J. Li, X. Tang and C.B. Xiao	557
Influence of Metallographic Etchant on γ' Precipitates Characterization in a Single Crystal Nickel-Base Superalloy X.L. Zhuang, H.Y. Wu, J.Y. Si and L. Jiang	563
Influence of Heat Treatment on the Microstructures and Mechanical Properties of K465 Superalloy Q. Huang, J.X. Song, Q. Li, W.P. Ren, X.G. Guan and H. Chen	570
Microstructure and Properties of W-Cu Composites Fabricated by Laser Cladding Forming G.Y. Wang, S.N. Gu, Y. Qin and S. Yang	580
Microstructure, Mechanical and Tribological Properties of the Rapidly Solidified NiAl/Cr(Mo,Dy) Hypoeutectic Alloy L.Y. Sheng	590
Microstructure of Chemical Vapor Transport Deposition Single Crystal Tungsten Coating Working at 1600°C H.T. Huang, Y.F. Wei, J.P. Zheng and C.W. Tan	597
Effect of Trace Strontium Addition on Microstructure and Room Temperature Fracture Toughness of Nb-12Si-22Ti Alloys M.L. Wu, F.W. Guo, M. Li and Y.F. Han	603
Microstructure and Room Temperature Mechanical Properties of a New Corrosion-Resistant Alloy GH945 for Oil and Gas Applications Z.X. Shi, X.F. Yan and C.H. Duan	609
Phase Diagram and Phase Equilibrium Studies on Ultra High Temperature Alloys of Nb-Si-Ti J.S. Wang, Y.W. Kang and C.R. Li	618

Chapter 6: Special Coatings

Laser Brazing Research on Carbon Steel and Stainless Steel Applying Fe-Based Amorphous Coating J.H. Song, S.J. He, Q.S. Xu, F.F. Liang, Y. Hou and R.S. Jiang	629
Effect of Mo Content on the Corrosion Resistance of Fe-Based Amorphous Composite Coating R.S. Jiang, Y.T. Wang, L. Hu, G. Xu and Z.D. Liu	636
Microstructure and Properties of Fe-Based Amorphous Composite Coating Prepared by Pulse Laser R.S. Jiang, Y.T. Wang, J. Tang, G. Xu and Z.D. Liu	642
Study on the Corrosion Behavior <i>In Vitro</i> and Mechanical Properties of the FHA Coated Mg-Zn-Zr Alloy C.G. Li, M.F. Chen, S.Z. Sun and J. Zhang	647
Structure and Properties of W-Ti Thin Films Deposited by Magnetron Sputtering G.Q. Sun, S. Yong and Y.H. Duan	654
Preparation and Properties of HfO₂-Y₂O₃ Composite Coating on the Surface of Iridium Coating S.H. Zhao, S.X. Bai, H. Zhang, Y.C. Ye and L.A. Zhu	659
Microstructure on Laser <i>In Situ</i> Deposit of TiB_x/TiC Reinforced Composite Coatings J. Liang, X.M. Tan, C.J. Wang, S.Y. Chen, C.S. LIU and J.C. Qin	665

Wear and Corrosion Properties of Crystalline Ni-W Alloy Coatings Prepared by Electrodeposition	671
H. Chen, X.R. Ren, X.H. Zhang and J.H. Li	
Microstructure and Properties of Fe Base Coatings Reinforced by <i>In Situ</i> TiC Particles Using Plasma Jet Surface Metallurgy	677
H. Chen, Y.R. Zhang and Z. Huang	
Influence of Impact Damage on the Thermal Stress Distribution within the EB-PVD Thermal Barrier Coatings	683
T.H. Huang, P. Song, Q. Ji, H. Luo and J.S. Lu	
Effect of the Porosity on Thermal Stress within TBCs Using Finite Element Method	689
H.H. Zhou, P. Song, H.X. Liao, T.H. Huang, J.S. Lu, Q. Ji and J.J. Zang	
WC Particles Reinforced Co-Based Alloy Coatings Produced by Laser Cladding	695
J.Z. Zhang, G.Y. Wang, Y. Qin and S. Yang	
<i>In Situ</i> Synthesis and Oxidation Behavior of Ti-Al-Ag Ternary Coatings	702
L. Yang, H. Li, H.Z. Liu and Y.Y. Zhang	
Influence of Ti on the Microstructure and Performance of Fe-Cr Alloy Cladding Layer	709
J.Y. Liu, Q. Tao, W. Lai, W.W. Tang, J. Wang and W. Liu	
Modulation of Tribological Performance of Copper by Chemical Modification with H₂O₂/HCl Mixture	716
L. Cao, Z.J. Sun, H.J. Lin, Y. Wan and J.G. Gao	
Solar Reflection Characteristics of Phthalocyanine Green/TiO₂ Composite Green Pigments Prepared via Different Approaches	725
X.J. Feng, Q.J. Mao, Q.R. Lv, Z.M. Wang and S.P. Cui	
SiO₂ Cryogel Dispersion in Organic Solvent for the Application as Transparent Heat Insulation Coating on PET	732
J.Y. Xu, J.H. Zhou and L. Miao	
Top-Down Fabrication of Superhydrophilic Graphene Oxide Nanosheets	738
X.B. Hu, Y. Yu, W.X. Ding, Z.H. Xiao, Y.Q. Wang, J.E. Zhou and L.X. Song	

Chapter 7: Methods of Powder Metallurgy in Creation of High Performance Structural Materials

Fine-Grained W-Ni-Fe Heavy Alloys Prepared by Spark Plasma Sintering	745
Y.J. Wu, Y.K. Li and D.H. Yu	
Prediction of Ring Rolling Process of PM Ti₂AlNb Alloy by Hot Isostatic Pressing Based on Gleeble-3800 and FE Simulation	753
Z.G. Lu, J. Wu, R.P. Guo, J.F. Lei, L. Xu and R. Yang	
Preparation and Welding Performance of Ti-6Al-4V Powder Compact Fabricated by Hot Isostatic Pressing	760
R.P. Guo, L. Xu, J. Wu, Z.G. Lu and R. Yang	
Isothermal α Precipitation and Evolution in a Hot-Rolled near β Titanium Alloy	766
M. Sun, X.Y. Xue, H.C. Kou, K. Hua, B. Tang and J.S. Li	
Preparation and Properties of Aluminum Boron Composite	775
S. Chen, Y. Sun, Y.H. Duan, B. Huang and M.J. Peng	
The Influence of Cylindrical Grinding Medium on Particle Size and Mechanical Properties of TiC Steel Bonded Carbide	781
G.P. Li, W. Chen, L.H. Sun, H.S. Sun and F.H. Luo	
Solidification Characterization of K418 Alloy Powders Fabricated by Argon Gas Atomization	788
L.L. Lu, S.M. Zhang, J. Xu, Y.W. Sheng, S.S. Wang, W.D. Zhao, J.H. Zhang and X.M. Zhao	
Effects of Combined Addition of Cr₃C₂ and NbC on Microstructure and Properties of Cemented Carbides Prepared by WC-Co Composite Powder	794
A.M. Jiang, Q. Li and F.J. Yang	
Meso-Structure Design of B₄C-Al/Al Composites by Hot Pressing	801
H. Li, Y.T. Zhang, K. Ameyama, H.J. Yang, Z.G. Liu and C.L. Ma	
Preparation and Magnetic Properties of Nanocrystalline FeSiAl Powder Produced with Strip Cast Ingot Process	807
L.H. Xu, H.C. Yu and H.P. Zhang	

Flow and Densification Behaviors of Sintered P/F-10C50 Steel under Hot Compression B. Guo, C.C. Ge, Y. Xu, Q.Y. Lu and S.C. Zhang	811
Fabrication of Zn Alloy Foam via Powder Metallurgical Approach W.P. Chen, D.H. Yang, J. Lu, Y. Feng, J.Q. Chen, L. Wang, J.H. Jiang and A. Ma	819
Fabrication of W-Cu/Lu₂O₃ Composites with High Strength and Electrical Conductivity Prepared by Electroless Plating and Powder Metallurgy Z.L. Lu, L.M. Luo, J. Zhang, Y.Q. Qin, X.M. Huang, G.N. Luo, X.Y. Zhu, X. Zan, J.G. Cheng and Y.C. Wu	825
The Microstructures and Properties of Carbon and Graphite Materials Prepared from Mesocarbon Microbeads by Different Molding Methods Z.Q. Zhang, H. Wan and X.Y. Cheng	831
Interface and Damping Capacity of Mg/Al Multilayered Composite Produced by Accumulative Roll Bonding Z.M. Liu, H.M. Chen, W.P. Guo, J. Zhang and Y.X. Jin	838
Effect of High Energy Ball Milling on Structures and Properties of Atomization Fe-Based Nanocrystalline Soft Magnetic Powders J. Zhou, Y. Chen, H.M. Zhu and X.F. Fan	844
Effects of Paste Composition and Sintering Process on Performance of Silver Paste for Silicon Solar Cells F.C. Yan, Y. Teng, J.K. Yan, J.H. Du, J.H. Yi, J. Yang and G.Y. Gan	852
Structure and Inverse Magnetocaloric Effect of Mn_{1.2}Co_{0.8}Si_{0.2}P_{0.8} Compound Prepared by SPS L. Ma, L. Zhou, L. Li, Z.F. Gu and G. Cheng	860
Effect of Ti Element on the Mechanical Properties of Cu-Matrix Bonding Diamond Tool Bits C.J. Xiao	865