Table of Contents

Preface

Chapter 1: Properties of Structural Alloys

Alloy Prepared by Stirring Integrated Transfer-Heat Technology under Different Cooling Mediums	
Z.Y. Qiu, B. Zhou, S. Lu, K.P. Chen, C. Xu and Z.Y. Wang	3
Correlating the Annealing Temperature Dependence of the Structural Inhomogeneity and the Diffusion in Zr-Ti-Cu-Ni-Be Glassy System M. Aniya	11
Recent Progress in Research of Metal Melt Structure S. Zhang and Y.D. Zeng	17
Effect of Rare Earth Ce on the Growth of Primary Al ₁₃ Fe ₄ Phase in Al-5Fe Alloy P. Liu, Y.D. Zeng and J. Zhang	25
Chapter 2: Metals Processing Technologies	
Study on Single Point Incremental Forming with the Roller Ball Tool for Increasing the Part Quality	
T.D. Thanh and P.S. Minh	33
Study on Rubber-Pad Formation for Sheet Metal M.T.U. Tran, T.V.A. Duong, H.T. Nguyen and V.P. Nguyen	39
Modeling Process of Manufacturing Parts Using Incremental Forming Process N. Kosimov, B. Krishna Singh, S.J. Li, W.N. Chen, J. Moon and D.W. Jung	45
Numerical Analysis of Nucleation and Growth of Stray Grain Formation during Laser Welding Nickel-Based Single-Crystal Superalloy Part III: Kinetic and Thermodynamic Obviation of Solidification Cracking	
Z.G. Gao Numerical Analysis of Nucleation and Growth of Stray Grain Formation during Laser Welding Nickel-Based Single-Crystal Superalloy Part II: Solidification Cracking Diminution through Single-Crystallinity Control Z.G. Gao	51 61
The Influence of Diffuse Element in Solid-State on Dissimilar Joint between Semi-Solid Cast 7075 with 6061 Al Alloy by Diffusion Welding C. Meengam, Y. Dunyakul, S. Chainarong and D. Maunkhaw	71
Formability of Aluminum in Incremental Sheet Forming B. Krishna Singh, W.N. Chen, S.J. Li and D.W. Jung	77
Chapter 3: Polymers, Composites and Ceramics	
The Effect of Bentonite Using Edible Oil as a Dispersed Medium on the Rheological, Thermal and Water Absorption Properties of PBS/Bentonite Composites A. Wiriya-Amornchai, R. Ausab, N. Jemkuntod and S. Phattarateera	85
Study on the Highe-Temperature Mechanical of Al ₂ O _{3f} /SiO ₂ and SiO _{2f} /SiO ₂ Ceramic Matrix Composites	0.1
J.L. Ci, F.D. Cui, L.L. Zhang, J. Zhang, Y. Lv, Y.M. Zhao and H. Zhang	91
Design and Performance of Polystyrene Modular Composite Dismantling-Free Formwork J.S. Zhang, A.Z. Sun and Q.L. Zeng	99
Preparation and Properties of Environmental-Friendly Ceramsite and Concrete J.S. Zhang, X. Luan and X.N. Chen	107

Failure Mechanism Analysis of Bonded Joint with Fiber Reinforce Plastic (FRP) Sucker Rod in Offshore Reservoirs	
Y.W. Zhang, H.X. Wang and J.Q. Che	113
Fracture Resistance and Failure Mode of Different Type of Ceramic Crowns L.X. Zhang and Y.X. Liu	119
Effect of Vibrations on the Weld-Line Strength of Injection Molded Products P.S. Minh and T.V.A. Duong	125
Chapter 4: Materials for Application in Electronics and Devices of Energy Conversion and Storage	
Preparation and Electrochemical Performance of Li ₄ Ti ₅ O ₁₂ /Co ₃ O ₄ Composite as an Anode of Lithium-Ion Battery M. Wang, H.L. Bao, L. Du, P.T. Qi and X.M. Zhang	133
Preparation and Electrochemical Performance of $\text{Li}_4\text{Ti}_5\text{O}_{12}/\text{SnO}_2$ Composite as an Anode of Lithium-Ion Batteries	
M. Wang, L. Du, P.F. Fang, H.L. Bao and J.T. Huang Preparation of Non-Enzymatic Glucose Sensing Nanocomposite Based on NiCo ₂ O ₄ Nanosheets@ Reduced Graphene Oxide and Design of Glucose Detection System	139
M. Dong, H.L. Hu and Y.L. Duan Modulation of Operating Cut-Off Frequency by Spin Pinned of Fe/Ni ₈₁ Fe ₁₉ / Fe Heterogenous Multilayer Films with Different Fe Thicknesses	145
Z.S. He, C.J. Wu, Y.F. Wang, X.N. Jiang, Z. Yu, Z.W. Lan and K. Sun	153
Chapter 5: Technologies for Chemical Production	
Research Development on Separation and Extraction of Selenium and Mercury Q. Feng, A.J. Li, Y.F. An, B. Zhang and Y.Q. Zhao	161
Size-Controlled C/N-Doped TiO ₂ Nanoparticles for Visible-Light-Driven Photocatalysis of Formaldehyde from Plywood	
X.Y. Yan, G.B. Zhang, R.H. Yuan, X.Y. Ye, X.X. Chen and H.H. He	169