

Table of Contents

Preface

Chapter 1: Steel and Alloys

Effects of Texture on Tensile Properties of Hot Extruded Mg-6Zn-1Y-1Ce Alloy L. Chen, W.P. Yang, H.B. Cui, Z.C. Xu, Y. Wang and X.F. Guo	3
Effects of Ce on Microstructure of As-Cast Mg-6Zn Alloy W.P. Yang, J.J. Zhou, H.B. Cui, Z.C. Xu, Y. Wang and X.F. Guo	11
Experiment and Numerical Simulation on Bearing Properties of Mg-Li Alloy Thread Q. Yang, C.H. Yang, K. Ma, X.O. Zhang, H.F. Chen and H. Ren	21
Research on Fatigue Properties and Fracture Mechanism of δ-TRIP Steel X. Xu, R.D. Liu, H.Y. Su, Y.P. Lu and J.Y. Guo	29
Impact of Rare Earth Addition on Creep Rupture Behavior of 316LN Austenitic Stainless Steel at 700°C R.X. Yang, X. Cai, L.G. Zheng, X.Q. Hu and D.Z. Li	37
Effect of Bainite/Martensite/Retained Austenite Triplex Microstructure on the High Strain Rate Behavior of a One Step Quenching and Partitioning Steel C.L. Li, L. Xiao, L. Li, X. Xin, R.K. Zhang and R.D. Liu	45

Chapter 2: Superalloys

Hot Corrosion Behavior of a New Powder Metallurgy Superalloy in Molten Na₂SO₄-NaCl Salts D.L. Liu, G.F. Tian, Y. Chen, W.H. Yang and R.D. Mu	57
Macro-Micro Coupled Simulation of SLM Process with Inconel 718 Superalloy H.X. Xia, P. Tao, Q.S. Feng, C. Yang, Q.Y. Xu and H.B. Dong	67
Anisotropic Tensile Properties in Ni-Based Single-Crystal Superalloy DD6 near [001] Orientation at 760°C J. Yu, J.R. Li, S.Z. liu, M. Han and J.C. Xiong	79
Transverse Stress Rupture Properties of a Nickel-Base Superalloy Bicrystal W.P. Yang, J.R. Li, S.Z. liu, X.G. Wang, J.Q. Zhao and Z.X. Shi	87
Effect of Heat Treatment on Microstructure Evolution in DD9 Single Crystal Turbine Blade Y.P. Xue, X.G. Wang, J.Q. Zhao, Z.X. Shi, S.Z. liu and J.R. Li	95
Effect of Boron Content on the Transverse Stress Rupture Properties of a Directionally Solidified Superalloy S. Wang, X.Y. Jia, S.P. Chen and Y.N. Tan	103
Effect of Annealing Treatment on the Recrystallization of a Single Crystal Superalloy S. Wang, X.Y. Jia, S.H. Long and Y.N. Tan	111
Effect of Co and Al Contents on Hot Corrosion Resistance of Powder Metallurgy Aeroengine Disk Superalloys W.H. Yang, G.F. Tian, D.L. Liu and R.D. Mu	119
Long Time Stability of Direct Aging GH4169G Alloy Forging Disc after Thermal Exposure at 650°C S.H. Fu, Z. Li, Y.Z. Zhang and T. Wang	129
Deformation Behavior of AEREX350 Alloy during Bolt Hot Heading Processing S.H. Fu, T. Wang, Z. Li and W.J. Jin	137
Effect of Withdrawal Rate on Microstructure and Mechanical Properties of a Third Generation Nickel Based Single Crystal Superalloy Y.Y. Guo, M. Zhang, C.G. Liu, J.W. Xu, J. Zhang and Y.S. Luo	143
Kinetics and Microstructures of Cellular Recrystallization of Single Crystal Superalloy DD6 J.C. Xiong, L.J. Hu and J.R. Li	155

Chapter 3: Luminescent Materials

Long Persistent Afterglow Luminescence in $\text{Gd}_3\text{Al}_3\text{Ga}_2\text{O}_{12}:\text{Ce}^{3+}$, Green Emitting Aluminate Phosphor

P.J. Yadav

163

Fabrication of W-LEDs by Coating Tri-Color Inorganic Phosphors on UV-Diode

N.D. Meshram and P.J. Yadav

169

A Review of the Synthesis, Performance, and Mechanism of Strontium Based Mechanoluminescence Material

A. Meeruty, M.N. Patel, S. Nihalani and P. Mewada

177

Mechanoluminescence Sensor - An Exhaustive Review

A. Meeruty, M.N. Patel, S. Nihalani and S. Singh

185

Chapter 4: Materials and Technologies for Environmental Protection

One-Step Hydrothermal Synthesis of an Orthorhombic $\text{WO}_3 \cdot \text{H}_2\text{O}/\text{TiO}_2$ Heterojunction and its Photocatalytic Activity

H.Y. Zhao, J.L. Kuang, P. Sun, W.X. Liu and W.B. Cao

195

Synthesis of Composite Carbon Fiber Electrode Materials for CO_2 Reduction

P. Shen, D. Ma, J. Li, Y. Tang and Q.Y. Ding

203