

XIYOU JINSHU CAILIAO YU GONGCHENG
稀有金属材料与工程



主管单位 中国科学技术协会
主办单位 中国有色金属学会 中国材料研究学会 西北有色金属研究院
出版单位 科学出版社

国家自然科学基金 中国科学技术协会 资助出版

月刊 国内外公开发行 第 40 卷 第 2 期 总第 295 期 2011 年 2 月

目次

材料科学

Study on Hydrogen in Mixed Gas Separated by Rare Earth Hydrogen Storage Alloys
.....Guo Shihai, Wang Guoqing, Zhao Dongliang *et al* (189)

Ab Initio Calculation of Interatomic Potentials in Ga-Stabilized δ -Pu Alloys.....Li Rusong, He Bin, Zhang Quanhui (195)

Microstructure and Properties of Friction Stir Welded Joints of Al-Mg-Sc Alloy Plates.....Peng Yongyi, Yin Zhimin, Lei Xuefeng *et al* (201)

Mechanical Properties of Tungsten Fiber Reinforced ($Zr_{41.2}Ti_{13.8}Cu_{12.5}Ni_{10}Be_{22.5}$)_{100-x}Nb_x Bulk Metallic Glass Composites.....Jiang Fei, Chen Guang, Wang Zhihua *et al* (206)

Evaluations of Antibacterial Activity and Cytotoxicity on Ag Nanoparticles.....Li Xinping, Li Shengli, Zhang Miaotao *et al* (209)

Effect of AgNO₃ Concentration on Morphologies and Structures of Nanostructured Ag.....Zhou Zeyuan, Yu Shuxiang, Lin Yuan *et al* (215)

基于 BP 神经网络 Ti600 合金本构关系模型的建立
.....孙 宇, 曾卫东, 赵永庆等 (220)

基于 BP 人工神经网络的 TC17 钛合金显微组织-力学性能关系预测
.....邵一涛, 曾卫东, 韩远飞等 (225)

生物医用 Ti-29Nb-13Ta-5Zr 合金的超塑性行为
.....张方哲, 周 清, 童国权等 (231)

基于团簇和胶粘原子模型的 (Fe-Ni)-B-Y-Nb 块体非晶合金
.....陈伟荣, 韩 光, 陈季香等 (236)

<111>取向 DD499 合金旋转弯曲高周疲劳性能的研究
.....孙岳来, 于金江, 王振江等 (239)

纤维排布方式对 SiC/Ti 材料残余应力影响的有限元分析
.....姜菊红, 杨延清, 罗 贤等 (243)

TiAl 基金合金叶片吸铸成形缺陷的数值模拟
.....叶喜葱, 苏彦庆, 郭景杰等 (247)

Al₈₆Fe₁₀Zr₄ 非晶合金的晶化与腐蚀行为研究
.....王文武, 林建国, 马 蓐等 (251)

Ti6Al4V 合金上类金刚石膜的摩擦学性能及腐蚀行为
.....刘建立, 王 智, 张玉娟等 (255)

Ni₇₅Cr_xAl_{25-x} 合金原子替代行为的微观相场模拟
.....褚 忠, 王 进, 陈 铮 (259)

Al-Zn-Mg-Cu-Zr-Sc 合金铸态 Al₃(Sc, Zr)相形貌的研究
.....戴晓元, 夏长清, 龙春光等 (265)

- 国家重点学术期刊
- 国家精品科技期刊
- 首届国家期刊奖
- 中国优秀科技期刊一等奖
- 中国有色金属工业优秀科技期刊一等奖
- 中国期刊方阵双奖期刊
- 陕西省首届“大报名刊工程”期刊
- 陕西省优秀科技期刊特等奖
- 中国科技论文统计源期刊
- 中国科学引文数据库文献源
- 中文核心期刊
- 中国材料科学核心期刊
- 中国物理学核心期刊
- 中国学术期刊光盘版入网刊物
- 美国 ISI 数据库用刊 (SCI Expanded®, Research Alert®, Materials Science Citation Index®)
- 美国工程索引 (EI) 文献源期刊
- 美国化学文摘 (CA) 文献源期刊
- 英国科学文摘 (INSPEC) 文献源期刊
- 日本科学技术文献速报 (JICST) 用刊
- 俄罗斯文摘杂志 (AJ) 文献源期刊
- 剑桥科学文摘 (CSA) 文献源期刊
- 美、英金属文摘 (MA) 文献源期刊
- 美国陶瓷文摘文献源期刊
- 世界铝文摘文献源
- 美国国会图书馆收藏刊物
- 中国科技期刊篇名数据库收录刊物
- 中国学术期刊综合评价数据库用刊
- 有色金属文献数据库文献源
- 《中国学术期刊文摘》文献源
- 《中国冶金文摘》文献源
- 《中国无机分析化学文摘》文献源
- 《物理文摘》文献源
- 《有色金属文摘》文献源

期刊基本参数: CN61-1154/TG * 1970 * m * A4 * 188 * zh * P * 30.00 * 2200 * 39 * 2011-02

XIYOU JINSHU CAILIAO YU GONGCHENG

稀有金属材料与工程

月刊 第40卷 第2期 2011年2月

主管 中国科学技术协会

主办 中国有色金属学会

中国材料研究学会

西北有色金属研究院

出版 科学出版社

(北京市东黄城根北街16号, 100717)

编辑 《稀有金属材料与工程》编辑部

主编 殷为宏

副主编 石应江

责任编辑 李哲 伍本德 蒲正利

刘延昌 谢曼 梁燕

英文编辑 齐国翠

编务 翟惠玲 刘亚利

排版 王嵘 杜亚凤

本期责任编辑 梁燕

印刷 西安创维印务有限责任公司

国内发行 陕西省邮政报刊发行局

国内发行代号 52-172

国外发行 中国国际图书贸易总公司

(北京市399信箱, 100048)

国外发行代号 M4873

订购 全国各地邮电局

(凡发现有缺页等印装错误, 请与承印厂联系

调换, 电话: 029-88231355)

编辑部地址 西安市51号信箱

邮编 710016

电话 029-86231117

传真 029-86231103

http://www.rmme.ac.cn

E-mail: rmme@c-nin.com

国内统一连续出版物号 CN 61-1154/TG

国际标准连续出版物号 ISSN 1002-185X

广告经营许可证号 6100004000085

国内外公开发行

定价 30元

原位固化黑荆树单宁对 La^{3+} 、 Pr^{3+} 、 Nd^{3+} 的吸附特性

.....童培杰, 廖洋, 李瑞桢等 (269)

$\text{Y}_{1.7}\text{Er}_{0.3}\text{Fe}_{17}$ 快淬带的结构和磁熵变

.....胡星浩, 侯雪玲, 张鹏等 (275)

新型镍基粉末高温合金微量元素的相研究

.....吴凯, 刘国权, 胡本美等 (279)

高阻尼 TNCH-Z 钛合金阻尼机制研究

.....罗媛媛, 赵永庆, 侯智敏等 (285)

基于模糊理论的 Ti-22Al-25Nb 合金高温本构关系模型

.....韩远飞, 曾卫东, 孙宇等 (289)

材料工艺

Cu/Ni 多层膜对 Ti811 合金微动磨损和微动疲劳抗力的影响

.....张晓化, 刘道新, 刘国华等 (294)

细晶 TiAl 基合金的制备及高温氧化行为.....陈华, 赵占奎 (301)

DZ125 定向凝固镍基高温合金组织与熔体超温处理时间的相关性

.....王常帅, 张军, 刘林等 (307)

磁性 $\text{Fe}_3\text{O}_4/\text{Pt}$ 复合纳米粒子的超声制备与表征

.....贺全国, 吴伟, 曾蕾 (311)

CeO_2 对 Ti-Al 渗层组织和抗高温氧化性能的影响

.....王红星, 李迎光, 储成林 (316)

液态置氢对 TC21 合金组织及硬度的影响

.....王亮, 苏彦庆, 王书杰等 (321)

不同应变速率下 TA15 钛合金 β 相变过程中动态再结晶行为

.....欧阳德来, 鲁世强, 崔霞等 (325)

时效时间对 Al-Cu-Li-Zr-Ce 合金断裂机制影响的半定量研究

.....王永欣, 孙承才, 陈铮等 (331)

注射成形制备多孔钛及其性能.....李挺, 李益民, 陈良建等 (335)

Zr 含量对磁控溅射 Mg-Zr-O 薄膜微观结构和放电性能的影响

.....王剑锋, 吴汇焱, 宋忠孝等 (339)

Au-Pt 双金属纳米粒子的制备及其电催化性质

.....李中春, 刘燕, 尚通明等 (343)

压力对 $\text{Zr}_{65}\text{Cu}_{27.5}\text{Al}_{7.5}$ 非晶合金凝固先析相的影响

.....张长军, 韩振华, 张亚宁等 (347)

铁掺杂对铝中氢行为的影响.....向鑫, 刘柯钊, 陈长安等 (352)

置氢 TC16 钛合金室温变形行为.....孙中刚, 陈国清, 周文龙等 (357)

WCu 复合粉体的溶胶-凝胶制备及其还原行为研究

.....赵明, 王金淑, 刘伟等 (362)

退火热处理对 $\text{Nd}_{0.75}\text{Mg}_{0.25}(\text{Ni}_{0.8}\text{Co}_{0.2})_{3.5}$ 储氢合金结构和性能的影响

.....潘崇超, 杨白, Javed Iqbal 等 (367)

综合评述

机动车催化剂用贵金属前驱体.....潘威, 张爱敏, 赵云昆等 (372)

RARE METAL MATERIALS AND ENGINEERING

This publication is covered in SCI Expanded®, Research Alert®, and Materials Science Citation Index® of ISI. Monthly, International Scholarly Journal, ISSN 1002-185X Vol. 40 No.2 Sum 295 February 2011

CONTENTS

Materials Science

- Study on Hydrogen in Mixed Gas Separated by Rare Earth Hydrogen Storage Alloys
.....Guo Shihai, Wang Guoqing, Zhao Dongliang *et al* (189)
- Ab Initio Calculation of Interatomic Potentials in Ga-Stabilized δ -Pu Alloys
.....Li Rusong, He Bin, Zhang Quanhui (195)
- Microstructure and Properties of Friction Stir Welded Joints of Al-Mg-Sc Alloy
Plates.....Peng Yongyi, Yin Zhimin, Lei Xuefeng *et al* (201)
- Mechanical Properties of Tungsten Fiber Reinforced
(Zr_{41.2}Ti_{13.8}Cu_{12.5}Ni₁₀Be_{22.5})_{100-x}Nb₂ Bulk Metallic Glass Composites
.....Jiang Fei, Chen Guang, Wang Zhihua *et al* (206)
- Evaluations of Antibacterial Activity and Cytotoxicity on Ag Nanoparticles
.....Li Xiping, Li Shengli, Zhang Miaotao *et al* (209)
- Effect of AgNO₃ Concentration on Morphologies and Structures of Nanostructured
Ag.....Zhou Zeyuan, Yu Shuxiang, Lin Yuan *et al* (215)
- Modeling of Constitutive Relationship of Ti600 Alloy Using BP Artificial Neural
Network.....Sun Yu, Zeng Weidong, Zhao Yongqing *et al* (220)
- Prediction of Correlation between Microstructure and Tensile Properties in Titanium
Alloys Based on BP Artificial Neural Network
.....Shao Yitao, Zeng Weidong, Han Yuanfei *et al* (225)
- Superplasticity Behavior of Ti-29Nb-13Ta-5Zr for Biomedical Application
.....Zhang Fangzhe, Zhou Qing, Tong Guoquan *et al* (231)
- (Fe-Ni)-B-Y-Nb Bulk Metallic Glasses Based on the Model of Clusters and
Glue Atoms.....Chen Weirong, Han Guang, Chen Jixiang *et al* (236)
- Rotary Bending High Cycle Fatigue Behavior of Single Crystal Superalloy DD499
in <111> Orientation.....Sun Yuelai, Yu Jinjiang, Wang Zhenjiang *et al* (239)
- Finite Element Analysis for Effects of Fiber Arrays on the Residual Stress of SiC
Fiber Reinforced Ti-Matrix Composite (SiC/Ti)
.....Lou Juhong, Yang Yanqing, Luo Xian *et al* (243)
- Numerical Simulation on Suction Casting Defects of TiAl Based Alloy Blade
.....Ye Xicong, Su Yanqing, Guo Jingjie *et al* (247)
- Crystallization and Corrosion Resistance of Al₈₆Fe₁₀Zr₄ Amorphous Ribbons
.....Wang Wenwu, Lin Jianguo, Ma Mo *et al* (251)
- Tribological Characterization and Corrosion Behavior of DLC Films on Ti6Al4V
Alloy.....Liu Jianli, Wang Zhi, Zhang Yujuan *et al* (255)
- Microscopic Phase-Field Simulation for Substitution Behavior of Cr Atom in
Ni₇₅Cr₂Al_{25-x} Alloy.....Chu Zhong, Wang Jin, Chen Zheng (259)
- Morphology of Primary Al₃(Sc, Zr) of As-Cast Al-Zn-Mg-Cu-Zr-Sc Alloys
.....Dai Xiaoyuan, Xia Changqing, Long Chunguang *et al* (265)
- Adsorption Property of in Situ Immobilized Black Wattle Tannin to La³⁺, Pr³⁺
and Nd³⁺.....Tong Peijie, Liao Yang, Li Ruizhen *et al* (269)

This Journal is covered in SCI Expanded®, Research Alert®, Materials Science Citation Index® (MSCI) of ISI; Engineering Index(EI); Chemical Abstracts (CA); Abstracts Journal(AJ); INSPEC; JICST; Cambridge Scientific Abstracts(CSA); Metals Abstracts(MA); World Aluminum Abstracts; Chinese Scientific and Technical Papers and Citations (CSTPC); Chinese Science Citation Index(CSCI).

Administrated by China Association for Science and Technology
Sponsored by the Nonferrous Metals Society of China, Chinese Materials Research Society, Northwest Institute for Nonferrous Metal Research
Published by Science Press
(16 Donghuangchenggen North Street, Beijing 100717, China)
Edited by Rare Metal Materials and Engineering Press
Editor in Chief: Yin Weihong

Address: P. O. Box 51, Xi'an, Shaanxi, 710016, China
Tel: 0086-29-86231117
Fax: 0086-29-86231103
http: //www.rmme.ac.cn
E-mail: rmme@c-nin.com

Overseas Distributor: China International Book Trade Corporation (P. O. Box 399, Beijing 100048, China)
Overseas Annual Subscription Rate: USD150

RARE METAL MATERIALS AND ENGINEERING

This publication is covered in SCI Expanded®, Research Alert®, and Materials Science Citation Index® of ISI.
Monthly, International Scholarly Journal, ISSN 1002-185X Vol. 40 No. 2 Sum 295 February 2011

Structure and Magnetic Entropy Change of Melt-Spun Y _{1.7} Er _{0.3} Fe ₁₇ Ribbons	
.....Hu Xinghao, Hou Xueling, Zhang Peng <i>et al</i>	(275)
Research on Trace Elements-Containing Phases in a New Type Nickel-Based P/M Superalloy	
.....Wu Kai, Liu Guoquan, Hu Benfu <i>et al</i>	(279)
Research on Damping Mechanism of TNCH-Z Titanium Alloy with High Damping	
.....Luo Yuanyuan, Zhao Yongqing, Hou Zhimin <i>et al</i>	(285)
Modeling the High-Temperature Constitutive Relationship of Ti-22Al-25Nb Alloy Based on Fuzzy Theory	
.....Han Yuanfei, Zeng Weidong, Sun Yu <i>et al</i>	(289)

Materials Technology

Effects of Cu/Ni Multilayer Film on Fretting Wear and Fretting Fatigue Resistance of Ti811 Alloys	
.....Zhang Xiaohua, Liu Daoxin, Liu Guohua <i>et al</i>	(294)
Preparation of TiAl Based Alloy with Fine Grains and Its High Temperature Oxidation Behavior	
.....Chen Hua, Zhao Zhankui	(301)
Relationship between Microstructure and Melt Superheating Time for Directionally Solidified DZ125 Superalloys	
.....Wang Changshuai, Zhang Jun, Liu Lin <i>et al</i>	(307)
Sonochemical Preparation and Characterization of Magnetic Fe ₃ O ₄ /Pt Composite Nanoparticles	
.....He Quanguo, Wu Wei, Zeng Lei	(311)
Effects of CeO ₂ Addition on Microstructure and High Temperature Oxidation Resistance of Ti-Al Coating	
.....Wang Hongxing, Li Yingguang, Chu Chenglin	(316)
Effect of Melt Hydrogenation on Structure and Hardness of TC21 Alloy	
.....Wang Liang, Su Yanqing, Wang Shujie <i>et al</i>	(321)
Dynamic Recrystallization of Titanium Alloy TA15 during β Hot Process at Different Strain Rates	
.....Ouyang Delai, Lu Shiqiang, Cui Xia <i>et al</i>	(325)
Semi-Quantity Method Research for Effects of Aging Time on Fracture Mechanisms of Al-Cu-Li-Zr-Ce Alloys	
.....Wang Yongxin, Sun Chengcai, Chen Zheng <i>et al</i>	(331)
Fabrication of Bioactive Porous Titanium by Metal Injection Molding and Its Properties	
.....Li Ting, Li Yimin, Chen Liangjian <i>et al</i>	(335)
Effect of Zr Concentration on Microstructure and Discharge Properties of Mg-Zr-O Films Deposited by Magnetron Sputtering	
.....Wang Jianfeng, Wu Huiyan, Song Zhongxiao <i>et al</i>	(339)
Preparation and Electrocatalysis Properties of Gold-Platinum Bimetallic Nanoparticles	
.....Li Zhongchun, Liu Yan, Shang Tongming <i>et al</i>	(343)
Influence of Hydrostatic Pressure on the Primary Phase Structure of Zr ₆₅ Cu _{27.5} Al _{7.5} Amorphous Alloys during Casting	
.....Zhang Changjun, Han Zhenhua, Zhang Yaning <i>et al</i>	(347)
Effect of Iron Doping on Helium Behavior in Aluminum	
.....Xiang Xin, Liu Kezhao, Chen Chang'an <i>et al</i>	(352)
Room Temperature Deformation Behavior of Hydrogenated TC16 Titanium Alloy	
.....Sun Zhonggang, Chen Guoqing, Zhou Wenlong <i>et al</i>	(357)
Preparation of WCu Composite Powders by Sol-Gel Method and Their Reduction Behavior	
.....Zhao Ming, Wang Jinshu, Liu Wei <i>et al</i>	(362)
Effects of Annealing Treatment on Microstructure and Properties of Nd _{0.75} Mg _{0.25} (Ni _{0.8} Co _{0.2}) _{3.5} Hydrogen Storage Alloys	
.....Pan Chongchao, Yang Bai, Javed Iqbal <i>et al</i>	(367)

Review

Review of Precursors of Precious Metals Used in Automobile Catalyst	
.....Pan Wei, Zhang Aimin, Zhao Yunkun <i>et al</i>	(372)