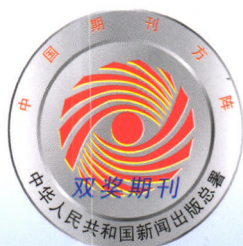


本出版物被SCI收录

ISSN1002-185X
CODEN XJCGEA

稀有金属材料与工程

RARE METAL MATERIALS AND ENGINEERING

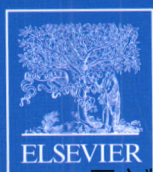


2013 年 1 月
第 42 卷

1



中国有色金属学会
中国材料研究学会 主 办
西北有色金属研究院
科 学 出 版 社 出 版



万方数据

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
月刊 国内外公开发行 第 42 卷 第 1 期 总第 318 期 2013 年 1 月

目次

材料科学

Effects of Rapid Quenching on Structure and Hydrogen Storage Characteristics of $Mg_{20}Ni_{10-x}Mn_x$ ($x=0\sim4$) Alloys
.....Zhang Yangchuan, Ren Huiping, Qi Yan *et al* (1)

Refinement Mechanism Research of Al_3Ni Phase in Ni-7050 Alloy
.....Gao Peng, Zhou Tietao, Xu Xiaoping *et al* (6)

Micromodel of Simulation on Twin-Roll Continuous Casting Thin Strip Solidification Structure.....Chen Shoudong, Chen Jingchao (14)

Magnetic Hysteresis and Electrical Impedance Spectra of Hard Magnetic $SmCo_5$ and Soft Magnetic $Co_{30}Ag_{70}$ Composites
.....Pongsakorn Jantaratana, Jureeporn Noodam, Chitnarong Sirisathitkul (19)

Effect of Y Addition on Microstructure and Mechanical Properties of TiAl-based Alloys Prepared by SPS
.....Xiao Shulong, Xu Lijuan, Yu Hongbao *et al* (23)

Fabrication of a New Mg-50% Al_4C_3 -6%Ce Master Alloy and Its Refinement Mechanism on AZ91D Alloy
.....Han Hui, Lü Cheng, Miao Huaming, Liu Shengfa *et al* (28)

Microstructure and Properties of Ag-1.33% Mg-0.54%Ni Alloy after Severe Plastic Deformation and Internal Oxidation
.....Kong Jianwen, Shi Qingnan, Wang Jianhua *et al* (32)

Influences of Strain Rates on Fracture Mechanism and Phase Separation in Hf-Based Bulk Metallic Glass
.....Sun Baoru, Zhan Zaiji, Zhang Ruijun *et al* (37)

TA18 高强钛管数控弯曲回弹工艺参数影响的显著性分析
.....宋飞飞, 杨合, 李恒等 (43)

氧化处理对 TC21 钛合金氧化色及力学性能的影响
.....贾志强, 曾卫东, 张尧武等 (49)

厚壁 TC4-DT 钛合金电子束焊接接头的微观组织特征
.....芦伟, 史耀武, 雷永平等 (54)

考虑不连续屈服的钛合金高温变形本构模型
.....王哲君, 强洪夫, 王学仁 (58)

Ti-V 基固溶体/La-Mg 基合金复合储氢材料的结构与电化学性能
.....王艳芝, 赵敏寿, 谌新艳 (64)

Ni-Cr-W-Mo 合金异型件的热旋成形规律有限元分析
.....安震, 李金山, 胡锐等 (70)

合金元素对新型Co-Al-W合金摩擦磨损性能的影响
.....徐仰涛, 夏天东, 赵文军等 (75)

爆炸加载条件下 CVD 高纯钨的变形机制
.....周静怡, 刘金旭, 李树奎等 (80)

形变热处理对 Mg-6Zn-1Zr-1.5Y 合金组织与性能的影响
.....张浩, 杜志惠, 阴中炜等 (84)

挤压变形态 Mg-5Li-3Al-2Zn-xY 合金的显微组织和力学性能
.....崔崇亮, 刘旭贺, 吴立斌等 (89)

- 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
- 国家重点学术期刊
- 国家精品科技期刊
- 两届国家期刊奖
- 中国优秀科技期刊一等奖
- 首届中国科协优秀国际科技期刊奖
- 中国有色金属工业优秀科技期刊一等奖
- 全国有色金属优秀科技期刊一等奖
- 中国期刊方阵双奖期刊
- 首届中国最具国际影响力的学术期刊
- 中国权威学术期刊
- 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
- 首届陕西省科协精品科技期刊
- 陕西省第 2 届精品科技期刊
- 首届陕西省新闻出版行业文明单位
- 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

XIYOU JINSHU CAILIAO YU GONGCHENG

稀有金属材料与工程



月刊 第42卷 第1期 2013年1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 蒲正利 刘延昌

谢曼 梁燕 张琦

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 谢曼

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 50元

Mg-8.5Li-3Al-xCe 系合金的时效行为研究

.....王涛, 张密林, 巫瑞智等 (94)

Sb 对 AM50-Y 镁合金组织和力学性能的影响

.....刘子利, 周桂斌, 刘希琴等 (99)

喷射成形 Al-Zn-Mg-Cu 合金电子束焊接接头组织研究

.....左玉婷, 王锋, 熊柏青等 (104)

直流偏压对铝合金表面高功率脉冲磁控溅射沉积钼薄膜耐蚀性的影响

.....李春伟, 田修波, 刘天伟等 (109)

ZM71-xCe 镁合金显微组织和力学性能

.....齐福刚, 张丁非, 兰伟等 (114)

Ce 对 2519A 铝合金抗冲击性能的影响

.....张新明, 刘军, 叶凌英等 (120)

热压烧结 ITO 靶材物相组成与电子结构研究

.....马晓波, 孙本双, 钟景明等 (126)

温度对高温合金 GH4169/K417 间接触热导的影响

.....符丽君, 张卫方, 王宗仁等 (131)

多壁碳纳米管表面涂层的形成及其抗氧化性

.....罗明, 李亚伟, 金胜利等 (135)

$\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ 和 ZnO 异质结的量子铁磁自旋特性

.....任韧, 秦晓柯, 王卫人 (140)

封接工艺对陶瓷-金属接头组织和力学性能的影响

.....张笑, 吕令涛, 杨建锋等 (145)

Bi 掺杂纳米 AgSnO_2 的耐电弧侵蚀性能研究

.....朱艳彩, 王景芹, 王海涛 (149)

铝合金挤压管坯的组织及织构研究.....王丽霞, 张喜燕, 薛祥义涛 (153)

材料工艺

钛金属($\text{B}_4\text{C}+\text{B}_2\text{O}_3$)固体粉末渗硼.....黄有国, 赵欣, 任孟德等 (158)

模板沉积-去合金化法制备块体泡沫金

.....谭秀兰, 牛高, 李恺等 (162)

航空用高强 TA18 钛合金管材的轧制工艺

.....南莉, 杨亚社, 齐元昊等 (166)

机械合金化法制备 Ti-Al 非晶复合涂层

.....胡永志, 沈以赴, 李博等 (171)

Ni 含量对 MgCu_2 型 Laves 相的结构和力学性能影响

.....周琦, 侯俊燕, 章新民等 (176)

涂层导体用织构铜镍合金基带热处理工艺的研究

.....邱火勤, 索红莉, 马麟等 (180)

$\text{Lu}_2\text{O}_3:\text{Yb}^{3+}, \text{Tm}^{3+}$ 纳米晶的水热法合成和上转换发光性能研究

.....李丽, 张友, 韦先涛等 (185)

0603 型钽电容器氧化膜的生长工艺.....徐云飞, 李春光, 安涛等 (190)

放电等离子烧结-热变形技术制备 NdFeB 永磁材料

.....李小强, 陈志成, 杨超等 (194)

原位一步法合成 $\text{Ag}/\text{Fe}_2\text{O}_3$ 磁性核壳纳米粒子

.....郭桂珍, 杨斌华, 赵贵哲等 (200)

Ti6Al4V 钛合金表面双层辉光等离子 W-Mo 共渗及其腐蚀磨损性能研究

.....张云露, 骆心怡, 何斐 (204)

有机小分子在修饰铂电极上的电化学氧化

.....魏杰, 王东田, 李传响等 (211)

综合评述

SiC 纤维增强 Ti 基复合材料疲劳研究进展

.....冯广海, 杨延清, 罗贤等 (215)

CONTENTS

Materials Science

Effects of Rapid Quenching on Structure and Hydrogen Storage Characteristics
of $Mg_{20}Ni_{10-x}Mn_x$ ($x=0-4$) Alloys
.....Zhang Yanghuan, Ren Huiping, Qi Yan *et al* (1)

Refinement Mechanism Research of Al_3Ni Phase in Ni-7050 Alloy
.....Gao Peng, Zhou Tietao, Xu Xiaoqing *et al* (6)

Micromodel of Simulation on Twin-Roll Continuous Casting Thin Strip
Solidification Structure
.....Chen Shoudong, Chen Jingchao (14)

Magnetic Hysteresis and Electrical Impedance Spectra of Hard Magnetic $SmCo_5$ and
Soft Magnetic $Co_{30}Ag_{70}$ Composites
.....Pongsakorn Jantaratana, Jureeporn Noodam, Chitnarong Sirisathitkul (19)

Effect of Y Addition on Microstructure and Mechanical Properties of
TiAl-based Alloys Prepared by SPS
.....Xiao Shulong, Xu Lijuan, Yu Hongbao *et al* (23)

Fabrication of a New $Mg-50\%Al_4C_3-6\%Ce$ Master Alloy and Its Refinement
Mechanism on AZ91D Alloy
.....Han Hui, Lü Cheng, Miao Huaming, Liu Shengfa *et al* (28)

Microstructure and Properties of $Ag-1.33\%Mg-0.54\%Ni$ Alloy after Severe
Plastic Deformation and Internal Oxidation
.....Kong Jianwen, Shi Qingnan, Wang Jianhua *et al* (32)

Influences of Strain Rates on Fracture Mechanism and Phase Separation
in Hf-Based Bulk Metallic Glass
.....Sun Baoru, Zhan Zaiji, Zhang Ruijun *et al* (37)

Significance Analysis of Processing Parameters Effect on Springback in High
Strength TA18 Tube NC Bending
.....Song Feifei, Yang He, Li Heng *et al* (43)

Effect of Oxidation Treatment on Color of Oxidation Layer and Mechanical
Property of TC21 Titanium Alloys
.....Jia Zhiqiang, Zeng Weidong, Zhang Yaowu *et al* (49)

Microstructure Characteristics of Electron Beam Welded
Thick-Wall TC4-DT Joint.....Lu Wei, Shi Yaowu, Lei Yongping *et al* (54)

Constitutive Model of Titanium Alloy during Hot Deformation Considering
Discontinuous Yielding Behavior
.....Wang Zhejun, Qiang Hongfu, Wang Xueren (58)

Structure and Electrochemical Characteristics of Ti-V-Based Solid
Solution/La-Mg-Based Alloy Composite Hydrogen Storage Material
.....Wang Yanzhi, Zhao Minshou, Chen Xinyan (64)

FEM Analysis on the Heat Spinning for Ni-Cr-W-Mo Superalloy Workpiece with
Strange Shape.....An Zhen, Li Jinshan, Hu Rui *et al* (70)

Effect of Alloying Elements on Friction and Wear Performance of Novel Co-Al-W
Superalloys
.....Xu Yangtao, Xia Tiandong, Zhao Wenjun *et al* (75)

Deformation Mechanism of High Purity Tungsten by CVD Subjected to
Explosion Loading.....Zhou Jingyi, Liu Jinxu, Li Shukui *et al* (80)

Effect of Hot Extrusion and Aging Treatment on Microstructure and
Mechanical Properties of $Mg-6Zn-1Zr-1.5Y$ Alloy
.....Zhang Hao, Du Zhihui, Yin Zhongwei *et al* (84)

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

Microstructure and Mechanical Properties of As-extruded Mg-5Li-3Al-2Zn-xY Alloy	
.....Cui Chongliang, Liu Xuhe, Wu Libin <i>et al</i>	(89)
Aging Behavior of Mg-8.5Li-3Al-xCe Alloy	Wang Tao, Zhang Milin, Wu Ruizhi <i>et al</i>
Effects of Sb on Microstructure and Mechanical Properties of AM50-Y Magnesium Alloy	Liu Zili, Zhou Guibin, Liu Xiqin <i>et al</i>
Electron-Beam Welded Microstructure of Spray Formed Al-Zn-Mg-Cu Alloy	Zuo Yuting, Wang Feng, Xiong Baiqing <i>et al</i>
Influence of DC Bias on Corrosion Resistance of Vanadium Films on Aluminum Fabricated by High Power Pulsed Magnetron Sputtering Method	Li Chunwei, Tian Xiubo, Liu Tianwei <i>et al</i>
Microstructure evolution and Mechanical Properties of ZM71-xCe(x=0.5, 1.0, 2.0) Wrought Magnesium Alloy	Qi Fugang, Zhang Dingfei, Lan Wei <i>et al</i>
Influence of Cerium Addition on the Impact Resistance of 2519A Aluminum Alloy	Zhang Xinming, Liu Jun, Ye Lingying <i>et al</i>
Study on Electronic Structure and Component of Hot Pressing ITO Sputtering Target Materials	Ma Xiaobo, Sun Benshuang, Zhong Jingming <i>et al</i>
Influence Investigation of Temperature on Thermal Contact Conductance across GH4169/K417 Interface	Fu Lijun, Zhang Weifang, Wang Zongren <i>et al</i>
Surface Coating Formation on the Multi-walled Carbon Nanotubes and Its Oxidation Resistance	Luo Ming, Li Yawei, Jin Shengli <i>et al</i>
Antiferromagnetic Spin Quantum Characteristics of La _{0.7} Sr _{0.3} MnO ₃ and ZnO Heterojunction	Ren Ren, Qin Xiaoke, Wang Weiren
Effect of the Sealing Process on the Structure and Mechanical Properties of Ceramic-Metal Sealing Fitting	Zhang Xiao, Lü Lingtao, Yang Jianfeng <i>et al</i>
Study on Arc Erosion Resistance Properties of Nano-AgSnO ₂ Electrical Contact Materials Doped with Bi	Zhu Yancai, Wang Jingqin, Wang Haitao
Study on the Microstructure and Texture of Zirconium Alloy Tube	Wang Lixia, Zhang Xiyan, Xue Xiangyi <i>et al</i>

Materials Technology

Pack Boronizing of Titanium by B ₄ C + B ₂ O ₃	Huang Youguo, Zhao Xin, Ren Mengde <i>et al</i>
Preparation of Monolithic Foamed Gold by a Template Deposit-Dealloying Method	Tan Xiulan, Niu Gao, Li Kai <i>et al</i>
Rolling Process of High-Strength TA18 Titanium Alloy Tubes for Aviation	Nan Li, Yang Yashe, Qi Yuanhao <i>et al</i>
Ti-Al Amorphous Composite Coating Prepared by Mechanical Alloying Method	Hu Yongzhi, Shen Yifu, Li Bo <i>et al</i>
Effects of Ni Content on the Structure and Properties of MgCu ₂ Laves Phase	Zhou Qi, Hou Junyan, Zhang Xinmin <i>et al</i>
Thermal Treatments for Textured Cu-Ni Alloy Tape for Coating Conductors	Qiu Huoqin, Suo Hongli, Ma Lin <i>et al</i>
Hydrothermal Synthesis and Upconversion Luminescent Properties of Lu ₂ O ₃ : Yb ³⁺ , Tm ³⁺ Nanocrystals	Li Li, Zhang You, Wei Xiantao <i>et al</i>
Growth Process of Tantalum Capacitor Oxide Film for 0603 Size	Xu Yunfei, Li Chunguang, An Tao <i>et al</i>
NdFeB Magnets Prepared by Spark Plasma Sintering and Hot Deformation	Li Xiaoqiang, Chen Zhicheng, Yang Chao <i>et al</i>
Synthesis of Ag/Fe ₂ O ₃ Core-Shell Composite Nanoparticles by In-situ Method	Guo Guizhen, Yang Binhua, Zhao Guizhe <i>et al</i>
Preparation of W-Mo Copenetrated Layer on Ti6Al4V Titanium Alloy Surface by Double Glow Discharge Technique and Its Corrosive-Wear Properties	Zhang Yunlu, Luo Xinyi, He Fei
Electrochemical Oxidation of Small Organic Molecules on Modified Platinum Electrode	Wei Jie, Wang Dongtian, Li Chuanxiang <i>et al</i>

Reviews

Research Progresses of Fatigue of SiC Fiber Reinforced Titanium Matrix Composites	Feng Guanghai, Yang Yanqing, Luo Xian <i>et al</i>
---	---