

中文核心期刊 中国科技核心期刊
中国科学引文数据库(CSCD)源刊

ISSN 1004-0676
CN 53-1063/TG



貴金屬

GUI JIN SHU

PRECIOUS METALS

第 39 卷 增刊第1期

2018年11月

Volume 39 Supplement 1

November 2018

2018年中国贵金属论坛
会议论文集
云南 瑞丽

中国有色金属学会 昆明贵金属研究所 主办

Sponsored by The Nonferrous Metals Society of China & Kunming Institute of Precious Metals

贵 金 属 GUIJINSHU

中国有色金属学会、昆明贵金属研究所主办 • 季刊 • 1980 年 8 月创刊
第 39 卷 • 增刊第 1 期 • 2018 年 11 月出版 • 国内外公开发行

目 次

◎ 贵金属合金材料

- (001) 无模拉拔工艺参数对 Ag-28Cu-8Sn 合金组织及性能的影响
.....方继恒, 谢 明, 陈永泰, 胡洁琼, 杨有才, 张吉明, 王 松, 马宏伟
- (008) 石墨烯纳米片增强银基复合材料.....王 松, 李爱坤, 侯 攀, 张吉明, 陈永泰, 谢 明, 刘满门
- (014) 热等静压制备 AgZnO 电触头材料的组织和性能研究
.....李爱坤, 聂宝鑫, 谢 明, 王 松, 陈 赟, 朱云飞, 陈永泰
- (021) AgPdCu/MX215 复合带材白亮带形成机理研究
.....陈永泰, 谢 明, 郑旭阳, 巫小飞, 谢 攀, 李爱坤, 杨有才, 刘 捷
- (025) 合金内氧化 AgCuO 电接触材料的组织和性能研究.....聂宝鑫, 李爱坤, 陈 赟
- (032) 铂基合金与 GH3128 合金电子束焊接接头组织与性能研究
.....蔡宏中, 易健宏, 吴 霏, 周利民, 魏 燕, 陈 力, 张翔翔, 崔 浩, 张贵学, 胡昌义
- (036) TMAI(TM=Ir、Ru 和 Os)金属间化合物高压下力学性能的第一性原理研究
.....王双轮, 潘 勇, 闻 明, 郭俊梅, 管伟明
- (042) 铂银合金超细丝材制备及研究.....侯智超, 罗 瑶, 滕海涛, 李勇军, 吕保国, 王 鹏
- (045) 冷加工制备医用铂钨丝材的研究.....罗 瑶, 侯智超, 滕海涛, 王伟华, 李勇军, 吕保国
- (049) 分离高纯氢用钯基合金膜简述.....李银娥, 姜 婷
- (053) Ag-Cu-Ti 合金制备技术及钎焊应用综述.....王 轶, 贾志华, 郑 晶, 操齐高
- (058) 钯合金钎料的研究进展.....贾志华, 王 轶, 李银娥, 姜 婷, 郑 晶
- (066) 银基系列电接触复合材料的研发与应用
.....郑旭阳, 巫小飞, 龙小庆, 聂宝鑫, 谢 明, 陈永泰, 王 松
- (072) 高通量实验技术发展现状及在贵金属研究中的应用分析
.....陈 松, 吴先月, 毕亚男, 谢 明, 王塞北, 胡洁琼, 刘满门
- (085) 氧化物强化 PtRh 合金的研究进展.....吴先月, 毕亚男, 陈 松, 谢 明, 胡洁琼, 王塞北, 王 松

◎ 贵金属电子浆料

- (092) 微米级银粉微观结构分析.....董宁利, 哈 敏, 郑 伟, 刘 芳
- (097) 球形金粉的化学还原制备及表征.....关俊卿, 滕海涛, 陈 峤, 王 鹏, 李治宇
- (101) Ag-30Pd 超细合金粉的化学法制备.....余青智, 余 睿

编 辑: 廖 微(排版、制图) 杜怡霖(排版) 赵 飞(排版)
责任编辑: 李楷中

[期刊基本参数] CN 53-1063/TG*1980*q*A4*222*zh*P*120.00*400*43*2018-11

- (105) 纳米银线柔性透明导电薄膜的制备及应用现状·····张卜升
- (109) 银纳米线的制备及应用简述·····孟宪伟, 徐成, 李海荣, 杨宏伟, 胡昌义

◎ 贵金属化学和催化材料

- (113) (1,5-环辛二烯)氯化钨(II)多聚体的合成及表征·····晏廷玺, 赵婧, 李杰, 刘伟平, 晏彩先
- (117) 电化学溶解铈粉工艺条件研究·····郝婷婷, 蒋凌云, 于海斌, 臧甲忠
- (120) 铂/钨基 NO_x 存储还原催化材料研究进展·····王成雄, 冯丰, 潘再富, 杨冬霞, 赵云昆
- (126) 负载型铂族金属催化剂研究进展·····姜保成, 姜澜
- (131) 汽车领域用铂替代钯—不是“要不要”, 而是“什么时候”的问题(英/中)···David JOLLIE, Dawn BROOKS

◎ 贵金属资源与回收

- (145) 低浓度含铈有机废液中硫化沉铈工艺优化研究
·····赵家春, 李强, 周伟, 吴跃东, 童伟锋, 杨海琼, 保思敏, 董海刚
- (150) 响应曲面法优化水溶液氯化溶解纯铈粉·····杨金富, 毕向光, 王火印, 李权, 卢峰, 赵云昆
- (155) 废三元催化器中钯的提取工艺研究
·····贡洁, 王钰杰, 孔雯, 吴彤, 朱炳龙, 岳喜龙, 周全法, 童霏
- (161) 从金还原后液中回收铂钯工艺研究·····赵祝鹏, 张善辉, 崔家友, 侯绍彬, 张腾, 常海涛
- (164) 王水渣综合回收金银工艺研究·····张善辉, 赵祝鹏, 崔家友, 侯绍彬, 姜学利, 常海涛
- (167) 钨的供给与应用研究进展(英)·····王欢, 贺小塘, 赵雨, 吴喜龙, 李勇, 王丽佳
- (172) 从失效催化剂中回收钨的研究进展·····殷耀锋, 王欢, 贺小塘, 赵雨, 李勇, 吴喜龙

◎ 贵金属分析测试

- (177) 足金首饰的硬化机制与维氏硬度试验·····高亚伟, 杨佩, 杜媛媛, 陈绪军
- (185) 饰品银含量和覆盖层厚度的 X 射线荧光检测·····吴奕阳, 杨鹤, 黄国芳
- (188) 云锦扁金线的金层含金量测定·····杨鹤, 吴奕阳, 赵敏华, 王浩杰, 张帆, 李媛媛
- (191) 铂合金含量测试—强度比值法的扩展应用研究···刘洛源, 兰延, 吴裕辉, 关富政, 黎辉煌, 王柯
- (195) 首饰中金含量火试金测定的国内外标准方法对比·····芦新根, 陈永红
- (199) 《白色金合金标准样品》的研制
·····兰延, 陈世昌, 王小清, 刘洛源, 张小虎, 关富政, 邹振宇, 陈文娟, 罗志高, 李勋鹤
- (206) 湿法分离-ICP-AES 法测定粗铜中金、银·····杨红玉, 孙海荣, 吕庆成, 喻生洁
- (209) ICP-AES 法测定三氯化钨中铁、铜、钙和镁的量·····孙海荣, 杨红玉, 喻生洁, 吕庆成
- (212) 水合肼-氢还原重量法测定硫酸钯溶液产品中的钯含量
·····苏琳琳, 左川, 韩媛, 罗媛, 刘俊, 赵飞, 熊俊
- (215) 酸分解-容量法测定四(三苯基膦)钯中的钯含量
·····鲁瑞智, 金娅秋, 杨晓滔, 曾荷峰, 付仕梅, 马媛, 甘建壮
- (219) 1,5-环辛二烯氯化钨的 HPLC 法测定·····冯洋洋, 杨知微, 常桥稳, 刘伟平, 楼丽广, 姜婧

·(封三) 中国贵金属论坛简介

PRECIOUS METALS

Sponsored by The Nonferrous Metals Society of China & Kunming Institute of Precious Metals
(Quarterly, started in Autumn 1980)
Volume 39, Number Supplement 1, November 2018

CONTENTS

◎ Alloy Materials of Precious Metals

- (001) Effect of Process Parameters for Dieless Drawing on Microstructure and Properties of Ag-28Cu-8Sn Alloy
.....*FANG Jiheng, XIE Ming, CHEN Yongtai, HU Jieqiong, YANG Youcai, ZHANG Jiming, WANG Song, MA Hongwei*
- (008) Silver Matrix Composites Reinforced with Graphene Nanoflakes
.....*WANG Song, LI Aikun, HOU Pan, ZHANG Jiming, CHEN Yongtai, XIE Ming, LIU Manmen*
- (014) Microstructure and Property Research on AgZnO Electrical Contact Materials Prepared by Hot Isostatic Pressing (HIP).....*LI Aikun, NIE Baoxin, XIE Ming, WANG Song, CHEN Yun, ZHU Yunfei, CHEN Yongtai*
- (021) Research on the Formation Mechanism of White Bright Band on AgPdCu/MX215 Composite Strip
.....*CHEN Yongtai, XIE Ming, ZHENG Xuyang, WU Xiaofei, XIE Pan, LI Aikun, YANG Youcai, LIU Jie*
- (025) Study on Microstructure and Properties of AgCuO Electrical Contact Material Made By Metal Internal Oxidation.....*NIE Baoxin, LI Aikun, CHEN Yun*
- (032) Microstructure and Properties of Electron Beam Welded Joints of Platinum Based Alloy and GH3128 Alloy
.....*CAI Hongzhong, YI Jianhong, WU Fei, ZHOU Limin, WEI Yan, CHEN Li, ZHANG Xuxiang, CUI Hao, ZHANG Guixue, HU Changyi*
- (036) Influence of High Pressure on the Mechanical Properties of TMA1 (TM=Ir, Ru and Os) from First-Principle Calculations.....*WANG Shuanglun, PAN Yong, WEN Ming, GUO Junmei, GUAN Weiming*
- (042) Preparation and Study of Pt-Ag Alloy Superfine Wire
.....*HOU Zhichao, LUO Yao, TENG Haitao, LI Yongjun, LÜ Baoguo, WANG Peng*
- (045) Preparation of Medical Platinum Tungsten Wire by Cold Working
.....*LUO Yao, HOU Zhichao, TENG Haitao, WANG Weihua, LI Yongjun, LÜ Baoguo*
- (049) Brief on Palladium-based Alloy Films for Separation of High-purity Hydrogen.....*LI Yin 'e, JIANG Ting*
- (053) Review on Preparation Technology and Brazing Application of Ag-Cu-Ti Alloy
.....*WANG Yi, JIA Zihua, ZHENG Jing, CAO Qigao*
- (058) Review of Palladium Based Solders.....*JIA Zihua, WANG Yi, LI Yin 'e, JIANG Ting, ZHENG Jing*
- (066) Development and Application of Silver-based Series Electrical Contact Composites
.....*ZHENG Xuyang, WU Xiaofei, LONG Xiaoqin, NIE Baoxin, XIE Ming, CHEN Yongtai, WANG Song*
- (072) Current Status of High Throughput Experimental Technology and Its Application in Research of Precious Metals.....*CHEN Song, WU Xianyue, BI Yanan, XIE Ming, WANG Seibei, HU Jieqiong, LIU Mangmen*
- (085) Progress in the Study of Oxide Strengthened PtRh Alloys
.....*WU Xianyue, BI Yanan, CHEN Song, XIE Ming, HU Jieqiong, WANG Saibei, WANG Song*

◎ Paste Materials of Precious Metals

- (092) Micro-structure Analysis of Micrometer Silver Powder.....*DONG Ningli, HA Min, ZHENG Wei, LIU Fang*
- (097) A Spherical Gold Powder Prepared by Chemical Reduction and Its Characterization
.....*GUAN Junqing, TENG Haitao, CHEN Qiao, WANG Peng, LI Zhiyu*
- (101) Preparation of Ag-30Pd Superfine Alloy Powders by Chemical Method.....*YU Qingzhi, YU Rui*
- (105) A Review on the Preparation and Application of AgNWs-based Flexible Transparent Conductive Film
.....*ZHANG Bosheng*
- (109) Preparation and Application of Silver Nanowires
.....*MENG Xianwei, XU Cheng, LI Hairong, YANG Hongwei, HU Changyi*

◎ Chemistry and Catalytic Materials of Precious Metals

- (113) Synthesis and Characterization of Dichloro(1,5-cyclooctadiene)ruthenium(II) Polymer
.....YAN Tingxi, ZHAO Jing, LI Jie, LIU Weiping, YAN Caixian
- (117) Study on Electrochemical Dissolution Technological Conditions of Rhodium Powder
.....HAO Tingting, JIANG Lingyun, YU Haibin, ZANG Jiazhong
- (120) Advances on Platinum/barium Based NO_x Storage Reduction (NSR) Catalyst Materials
.....WANG Chengxiong, FENG Feng, PAN Zaifu, YANG Dongxia, ZHAO Yunkun
- (126) Research Progress of Supported Platinum Group Metal Catalysts.....JIANG Baocheng, JIANG Lan
- (131) Substitution of Platinum for Palladium in the Automotive Sector – a Case of ‘WHEN’, Not ‘IF’(Eng/Chn)
.....David JOLLIE, Dawn BROOKS

◎ Resources and Recovery of Precious Metals

- (145) Optimization of Sulfide Precipitation Rhodium on Low Concentration Organic Waste Liquid Containing Rhodium
.....ZHAO Jiachun, LI Qiang, ZHOU Wei, WU Yuedong,
TONG Weifeng, YANG Haiqiong, BAO Simin, DONG Haigang
- (150) Optimization of Aqueous Chlorination Solubilized Pure Rhodium Powder by Response Surface Methodology.....YANG Jinfu, BI Xiangguang, WANG Huoyin, LI Quan, LU Feng, ZHAO Yunkun
- (155) Extraction of Palladium from Waste Catalytic Converters
.....GONG Jie, WANG Yujie, KONG Wen, WU Tong ZHU Binglong, YUE Xilong, ZHOU Quanfa, TONG Fei
- (161) Research on Recycling of Platinum and Palladium from Golden Reduced Solution
.....ZHAO Zhupeng, ZHANG Shanhuai, CUI Jiayou, HOU Shaobin, ZHANG Teng, CHANG Haitao
- (164) Research on Recycling of Gold and Silver from Aqua-Regia-Treated Gold Slag
.....ZHANG Shanhuai, ZHAO Zhupeng, CUI Jiayou, HOU Shaobin, JIANG Xueli, CHANG Haitao
- (167) Reviews on Supply and Application of Ruthenium(Eng)
.....WANG Huan, HE Xiaotang, ZHAO Yu, WU Xilong, LI Yong, WANG Lijia
- (172) Research Progress in Recovery of Ruthenium from Spent Catalyst
.....YIN Yaofeng, WANG Huan, HE Xiaotang, ZHAO Yu, LI Yong, WU Xilong

◎ Analysis and Testing of Precious Metals

- (177) Hardening Mechanism and Vickers-hardness Test of Solid Gold Jewelry
.....GAO Yawei, YANG Pei, DU Yuanyuan, CHEN Xujun
- (185) Testing of Silver Content and Coating Thickness of Jeweler by X-ray Fluorescence Spectrometer
.....WU Yiyang, YANG Su, HUANG Guofang
- (188) Determination of Gold Content in the Gold Layer of Cloud Brocade Flat Gold Line
.....YANG Su, WU Yiyang, ZHAO Minhua, WANG Haojie, ZHANG Fan, LI Yuanyuan
- (191) Platinum Alloy Content Test-Extended Application Study on Intensity Ration Method
.....LIU Luoyuan, LAN Yan, WU Yuhui, GUAN Fuzheng, LI Huihuang, WANG Ke
- (195) Comparison on International Standards of Fire Assaying Determination for Gold in Jewelry
.....LU Xingen, CHEN Yonghong
- (199) The Development of "Certified Reference Material for White Gold Alloy"
.....LAN Yan, CHEN Shichang, WANG Xiaoqing, LIU Luoyuan, ZHANG Xiaohu,
GUAN Fuzheng, ZOU Zhenyu, CHEN Wenjuan, LUO Zhigao, LI Xunhe
- (206) Determination of Gold and Silver in Crude Copper by Wet Chemical Separation - ICP-AES
.....YANG Hongyu, SUN Hairong, LÜ Qingcheng, YU Shengjie
- (209) Determination of Iron, Copper, Calcium and Magnesium in Ruthenium Trichloride by ICP-AES
.....SUN Hairong, YANG Hongyu, YU Shengjie, LÜ Qingcheng
- (212) Determination of Palladium in PdSO₄ Solution by Hydrazine Hydrate-Hydrogen Reduction Gravimetric Method.....SU Linlin, ZUO Chuan, HAN Yuan, LUO Yuan, LIU Jun, ZHAO Fei, XIONG Jun
- (215) Volumetric Determination of Palladium Content in Tetrakis(triphenylphosphine) Palladium Decomposed by Acid.....LU Ruizhi, JIN Yaqiu, YANG Xiaotao, ZENG Hefeng, FU Shimei, MA Yuan, GAN Jianzhuang
- (219) An Analytical Method for Determination of (1,5-Cycloocatadiene) Chloroiridium Dimmer with High Performance Liquid Chromatography
.....FENG Yangyang, YANG Zhiwei, CHANG Qiaowen, LIU Weiping, LOU Liguang, JIANG Jing

Serial parameters: CN 53-1063/TG*1980*q*A4*222*zh*P*120.00*400*43*2018-11

Ru Rh Pd Ag
Os Ir Pt Au

增刊备案号：531063 201801

贵金属

GUI JIN SHU

(季刊, 1980年创刊)

第39卷 增刊第1期 2018年11月

Precious Metals

(Quarterly, Started in 1980)

Vol.39 No.S1, November 2018

主 管：云南省贵金属新材料控股集团有限公司

主 办：中国有色金属学会
昆明贵金属研究所

主 编：朱绍武

编辑出版社：《贵金属》编辑部

编辑部地址：昆明市高新技术开发区科技路988号
昆明贵金属研究所 (650106)

网 址：<http://journal.ipm.com.cn>
<http://www.j-preciousmetals.com>

电 子 邮 箱：bjba@ipm.com.cn
GJSZ@chinajournal.net.cn

电话 / 传真：(0871)68328632

印 刷：昆明双凤东路192号 (650200)
云南新华印刷一厂

发 行：《贵金属》编辑部

Superintended by Sino-Precious Metals Holding Co. Ltd.

Sponsored by The Nonferrous Metals Society of China
Kunming Institute of Precious Metals

Chief Editor ZHU Shaowu

Edited & Published by Precious Metals Editorial Panel

Editorial office 988# Keji Rd. Kunming High & New Tech.
Industry Development Zone (650106)
Kunming Institute of Precious Metals

Website: <http://journal.ipm.com.cn>
<http://www.j-preciousmetals.com>

E-mail: bjba@ipm.com.cn
GJSZ@chinajournal.net.cn

Tel / Fax: (0871)68328632

Printed by Yunnan Xinhua No.1 Printshop
192 Shuangfeng east Rd. Kunming 650200, China

ISSN 1004-0676

中国标准连续出版物号：ISSN 1004-0676
CN 53-1063/TG

国家商标注册号：642825

国内定价：¥ 120.00
国际定价：\$ 80.00

