

中国矿业

6

2023



中国科技核心期刊

RCCSE中国核心学术期刊

中国期刊全文数据库收录期刊

中国学术期刊综合评价数据库来源期刊

日本科学技术振兴机构数据库 (JST) 收录期刊

自然资源领域高质量科技期刊分级目录 (2022年) (T2级)

科技期刊世界影响力指数 (WJCI) 报告 (2022) 收录期刊 (Q2区期刊)

第32卷 第6期 增刊

2023年6月出版

ISSN 1004-4051

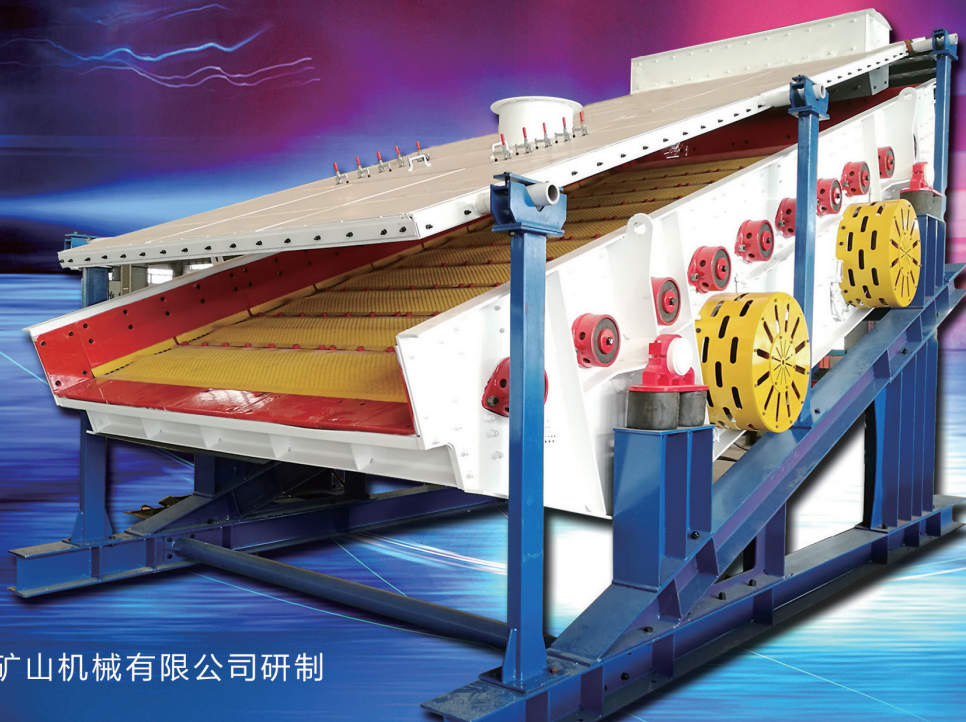
CN 11-3033/TD

高强抛射筛

广告



- 黏湿细粒物料 (3~13 mm) 筛分的理想选择
- 低振动强度、高抛射强度、物料抛射加速度达 60~80 g
- 驰张筛技术升级产品



鞍山鞍重矿山机械有限公司研制

新技术 高效率 低能耗

地址：辽宁省鞍山市鞍千路 294 号 (114051)

电话：0412-5235088 5239900

传真：0412-5235077

网址：www.anheavy.com

邮箱：aszklac2004@126.com

ISSN 1004-4051



(2023)京新出刊增准字第(129)号

中国矿业

第 32 卷 增刊 1 2023 年 6 月

目次

矿业综述

全球重大铜矿并购市场特点以及对我国矿企提升国家资源保障能力的启示	李丽, 董方浏, 杨晓坤 (1)
自然资源领域基层政务公开视域下的矿产资源管理建议	王晨阳, 王维, 陈熙, 黎明, 陈汉生 (8)

矿业管理与经济

境外矿业项目安全管理体系建设研究	程胜红, 王小龙 (13)
电子围栏技术及采矿权超层越界开采防范	王飞跃 (16)
空间管理体系标准管理模式的质量管理标准化探讨	彭秋月 (22)
公益性事业单位内部控制信息化建设研究: 以地质调查系统单位 H 为例	瞿永泽, 杨秀绣, 兰宇飞, 严明, 付小茗 (28)
职业病保障制度演变与完善研究: 基于煤矿企业用工制度演变视角	杜峰, 王占永 (35)

绿色矿业

绿色矿山建设伦理价值体系重要性研究	沈琳 (40)
辽宁省国家级绿色矿山建设现状及发展对策研究	刘国昊, 崔育菴, 姜立华, 张思佳, 许卫江, 宋蕴航 (44)
绿色地质勘查施工现场管理措施及技术经济评价: 以四川某锂矿勘探项目为例	杨元良, 陈慕天, 郭建强, 岳大斌, 宋祥峰, 廖兴健, 陈加中, 王章翔, 邵兴隆, 许国明 (48)
尾矿库回采技术路线研究	王新岩 (55)
大红山铁矿深部开采对地表露天采场影响的 F ₂ 断层控制阻隔效应分析	杨泽, 孙华芬, 杨天鸿, 付宪吕 (58)

地质找矿

山东莱芜地区谷家台铁矿航磁异常特征及找矿前景	赵晓博, 胡创业, 高文凯, 杨超, 刘云, 胡加斌 (64)
胶西北海岸带基岩矿床分布富集规律及典型矿床主要特征	盛建华, 韩代成, 丁正江 (69)
内蒙古达茂旗善丹地区地质矿产特征及找矿前景分析	李建委, 孙峰, 张保涛, 赵磊, 刘云, 张永三 (76)
达茂旗查汉此老萤石矿矿床特征及矿床成因探讨	李豹龙, 王启运, 王军, 贾鹏飞, 李晓飞 (80)
内蒙古达茂旗沙尔陶勒盖地区地质矿产特征及找矿前景	孙峰, 张保涛, 李建委, 刘云, 姬晴川 (85)
四川省石棉县孟获城一带花岗岩体地质特征及铀找矿标志	张琨瑜, 龙宇 (89)
钻井信息与地球物理综合分析的贵州石炭系页岩沉积特征	卢岩, 林拓, 苑坤, 王超, 高聪 (93)

地质科普

遥探境外重要海峡通道: 曼德海峡	杨怡, 郭雅, 鞠星, 肖梦楚 (99)
地震勘探: 页岩气资源评价的好帮手	莫国宸, 张庆玉, 巴俊杰, 季少聪, 李景瑞 (103)
页岩气储层微观表征技术研究	巴俊杰, 张庆玉, 莫国宸, 季少聪, 聂国权 (107)

桂林会仙岩溶湿地景观类型及其美学价值	
..... 邹胜章, 阳 静, 周长松, 樊连杰, 卢 丽, 林永生, 王 佳	(110)
岩溶野外科学观测研究站建设及数据共享研究	杨 辰, 毕奔腾, 周立新 (114)
城市路面塌陷类型与防治对策	吴远斌, 殷仁朝 (117)
矿业纵横	
陡倾地层大型硐室群岩体质量评价分析	余天成, 原 野 (121)
Capella 油田孔隙-裂缝型储层地质建模研究	王 斌 (126)
川南煤田古叙矿区钻探技术难点与对策	龙海涛, 杨福全, 伍承浩 (135)
钒元素对带钢轧制过程的影响及机理研究	雷武军 (139)
煤系泥页岩复杂地层冲洗液研究与应用	龙海涛, 杨福全, 伍承浩, 曹 勇, 胡志明 (143)
上锁挂牌流程在装置检修作业中的构建及应用	
..... 海宇任, 王万禄, 张树洪, 赵 昕, 袁望生, 华 萍	(148)
智能矿山	
保德煤矿 F5G 全光工业网设计及应用	韩忠利 (153)
保德煤矿智能化掘进工作面建设及应用研究	蒲 林 (157)
矿物加工流程服务平台搭建与实现	安鹏翔, 郭振宇, 宋 涛, 刘道喜 (162)
选矿工艺流程图计算机生成技术研究与应用	张海洋, 宋晓梅, 杨佳伟 (167)
基于专家 PID 的锂云母浮选系统液位控制方法	周 冶, 刘道喜, 刘 猛 (173)
基于多数据融合控制器的浮选过程控制应用研究	李 强, 范凌霄, 刘利敏, 苏 勇 (177)
基于流固耦合的充气量波动下的浮选机振动响应实验性研究	陈 强, 张福亚, 史帅星 (182)
25 000 t/d 钼矿石项目选矿自动化系统应用	王海志, 刘道喜, 周 冶 (189)
线性移动刀口取样系统在八岔沟铅锌矿选矿厂的应用	
..... 张子悦, 刘超凡, 佟洪新, 袁建明, 周 成	(193)
尾矿浓密优化控制技术研究及应用	王海志, 刘道喜, 周 冶 (199)
基于定子电流特性分析的渣浆泵故障预测 ... 杨天皓, 宋 涛, 余 刚, 王庆凯, 邹国斌, 李 康	(204)
破碎流程智能专家系统的应用与开发	杨树亮, 任林海, 刘道喜 (209)
BOTA 氰根分析仪在金矿的应用 ... 杨树亮, 党铁栓, 李传伟, 韩文阁, 张绍忱, 孙晋龙, 刘道喜	(213)
基于可编程自动化控制器的综采设备智能一体化探索	蒲 林 (217)
阜山金矿尾砂综合利用及充填系统研发与应用	梁 超, 马宏伟 (223)
永磁同步直驱变频系统在补连塔煤矿 106 主运胶带机上的应用	张 顺, 卞 涛, 刘银报 (229)
新疆某矿山地压监测数据分析研究	叶尔布兰·瓦黑提, 石 峰 (235)
楚烽磷矿采空区治理及其过程安全监测实践	马玉涛, 袁本胜, 蔡永顺, 王 平 (238)
基于微震中长期监测的地下开采对地表影响分析	孙承超, 魏筱乐, 周 锐, 王 贺 (243)
遥感技术在水电站地质灾害识别与监测预警中的应用与展望	韩龙祖, 贾 丹 (248)
乙醇在线监测智能传感器技术及实现方式研究	王芍芳, 余 旦 (252)
基于改进蚁群算法的铅锭转运智能叉车路径规划技术研究	唐 雄, 彭 强, 姜 智, 姜 勇 (257)
基于锂电积智能行车 PLC 控制系统在强磁场环境中的抗干扰分析与研究	
..... 彭 强, 太旭维, 姜 智, 姜 勇	(263)
单神经元控制器在剥锌机主剥离过程控制的应用研究	李 强, 范凌霄, 刘利敏, 苏 勇 (267)
基于单因素条件智能剥锌机剥离载荷变化规律研究	唐 雄, 彭 强, 姜 勇 (272)
基于分室脉冲布袋除尘器控制系统的西门子 PLC 故障诊断分析与研究	
..... 彭 强, 唐 雄, 姜 智, 姜 勇	(277)
采选工程	
巨厚坚硬砾岩顶板下无煤柱开采技术的应用	刘晓宇, 于世波, 王志修, 曹 聪 (281)

荣康煤矿切顶留巷无煤柱开采技术研究与应用	李永进, 王英豪, 杨玉华, 盖秋凯, 张星星, 高玉兵 (288)
厚层坚硬顶板无煤柱自成巷开采关键控制技术	刘晓宇, 于世波, 王志修, 曹 聪 (295)
朱家崙煤矿厚层砂岩顶板切顶成巷技术研究与应用	郭中安, 李相通, 张星星, 姜海滨, 尚建学, 高玉兵 (303)
近距离煤层开采过上覆采空区影响分析	卞 涛, 刘建宇, 张 顺 (309)
柔模矸墙合理宽度设计及巷道围岩控制技术研究	任 超 (313)
深部区域岩体巷道支护结构参数设计研究	远义飞, 蒋广朋, 冷晓亮, 秦建庚 (318)
浅埋综采面末采贯通关键技术研究	薛 刚, 卞 涛, 李金刚 (323)
缓倾斜极薄矿体采矿方法研究	郭裕民, 钟芳权, 周建荣, 曾宪君, 张际敏, 伍羽平 (328)
受多重采动影响的回采巷道顶板及矿压显现研究	刘建宇, 卞 涛, 呼天峰 (333)
多中段复杂残留矿柱回采方案数值模拟分析	侯国权, 郭利杰, 许文远 (337)
浅埋超长综采工作面回采关键技术研究	李瑞楼, 卞 涛 (344)
补连塔煤矿 22310 综采面回采经验分析	卞 涛, 李金刚, 呼天峰 (350)
多种物探方法在煤矿回采工作面防治中的应用	杨增林, 杜 平 (355)
超大采高综采工作面安全回采技术研究	刘兆祥, 卞 涛, 李金刚 (361)
深部金矿向上水平分层充填法采场结构参数研究	马宏伟, 宋建功, 杜久华, 李 瀚 (366)
深部破碎矿体首采进路管棚支护参数计算方法及应用	罗 磊, 胡博文 (376)
下向水平分层进路胶结充填采矿法在毛坪铅锌矿的应用	孙承超, 罗 磊, 梁燕兵 (382)
顺层瓦斯抽采钻孔封孔深度数值模拟及现场应用研究	刘雪夫 (386)
北截金矿深部岩体岩爆倾向性与岩爆等级分析预测	宋洪宇, 刘鹏飞, 安志刚, 徐桂壮 (391)
深部金矿岩爆倾向性对比分析研究	梁 超, 杨铁江, 杨 凯, 杨海芹 (398)
深部金矿岩爆倾向性分析与防控支护设计研究	杜久华, 刘海波, 高新雨, 张昆明 (404)
某铜硫矿细粒级硫浮选回收扩大试验研究	李恒欠 (409)
高效铜捕收剂在国外某含碳硫化铜矿浮选的应用研究	陶 坤 (413)
金地铝矿浮选效果问题研究与对策	高 轩, 张福亚 (419)
Fe ³⁺ 影响黄铜矿抑制行为的研究	马艳红, 朱阳戈, 吴桂叶, 刘崇峻, 刘慧南, 卢 通 (423)
山东蒙阴胜利 1 号岩管金刚石矿物学特征研究	翁立群, 王春晖, 程晓晓 (429)
姜家窑金矿深部高温热害研究分析与控制	杨铁江, 徐 涛, 盛新利, 丁珩根 (436)
滇东北岩溶大水深部矿山突水危险性评价研究	孙帮涛 (440)
矿井离层水害类型及突水可能性判别	易四海, 王 赞, 尹尚先, 高鹏程, 仲 锐 (447)
高浓度泥浆法在铜矿酸性废水处理中的工程案例	杨小明, 黄鸽黎 (451)
基于河床扰动试验的地下水渗漏补给机制研究	李东立, 陈 强, 赵正友, 章爱卫 (455)
大竹园铝土矿首采区矿井透水致灾机理及防治措施	黄光洪, 吴延平 (462)
大斜度井精细分段压裂技术研究及应用	刘 彝, 刘 玲, 姜喜梅, 于洋洋, 吴 均 (470)

CHINA MINING MAGAZINE

Vol.32 Supplement 1 June 2023

CONTENTS

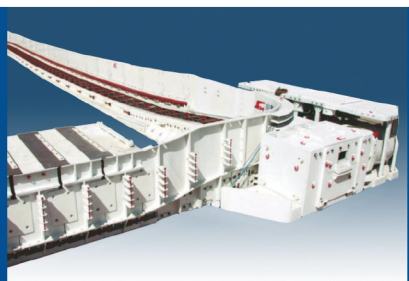
Characteristics of global copper M&A and its implications on Chinese mining companies' capacity improvements of securing quality resources	LI Li, DONG Fangliu, YANG Xiaokun (1)
Suggestions on mineral resources management from the perspective of grass-roots government openness in the field of natural resources	WANG Chenyang, WANG Wei, CHEN Xi, LI Ming, CHEN Hansheng (8)
Research on the construction of safety management system for overseas mining projects	CHENG Shenghong, WANG Xiaolong (13)
Electronic fence technology and prevention of mining right overlying and overcrossing mining	WANG Feiyue (16)
Discussion on quality management standardization of space management system standard management mode	PENG Qiuyue (22)
Research on the information construction of internal control in public welfare institution : taking unit H of geological survey as an example	JU Yongze, YANG Xiuxiu, LAN Yufei, YAN Ming, FU Xiaoming (28)
Research on the evolution and improvement of occupational disease security system from the perspective of the evolution of the coal mining enterprises employment system	DU Feng, WANG Zhanyong (35)
Study on importance of ethical value system in green mine construction	SHEN Lin (40)
Construction status and development countermeasures research of national green mine construction in Liaoning Province	LIU Guohao, CUI Yusong, JIANG Lihua, ZHANG Sijia, XU Weijiang, SONG Yunhang (44)
Management measures and technical economic evaluation of green geological exploration construction site : taking a lithium exploration project in Sichuan as an example	YANG Yuanliang, CHEN Mutian, GUO Jianqiang, YUE Dabin, SONG Xiangfeng, LIAO Xingjian, CHEN Jiazhong, WANG Zhangxiang, SHAO Xinglong, XU Guoming (48)
Research on the technical route of tailings pond mining	WANG Xinyan (55)
Influence of underground mining on surface open-pit in Dahongshan Iron Mine under the action of F ₂ fault control barrier effect	YANG Ze, SUN Huafen, YANG Tianhong, FU Xianlyu (58)
Aeromagnetic anomaly characteristics and prospecting potential of Gujiatai Iron Deposit in Laiwu Area, Shandong Province	ZHAO Xiaobo, HU Chuangye, GAO Wenkai, YANG Chao, LIU Yun, HU Jiabin (64)
Distribution and enrichment law of bedrock deposits in the coastal zone of northwest Jiaodong and main characteristics of typical deposits ..	SHENG Jianhua, HAN Daicheng, DING Zhengjiang (69)
Analysis of geological and mineral characteristics and prospecting prospect in Shandan Area, Damao Banner, Inner Mongolia	LI Jianwei, SUN Feng, ZHANG Baotao, ZHAO Lei, LIU Yun, ZHANG Yongsan (76)
Discussion on the characteristics and genesis of the Chahancilao Fluorite Deposit in Damao Banner	LI Baolong, WANG Qiyun, WANG Jun, JIA Pengfei, LI Xiaofei (80)
Geological and mineral characteristics and prospecting prospects of the Shaltaulegai Area in Damao Banner, Inner Mongolia	SUN Feng, ZHANG Baotao, LI Jianwei, LIU Yun, JI Qingchuan (85)
Geological characteristics and uranium prospecting criteria of granite bodies in Menghuocheng Area, Shimian County, Sichuan Province ...	ZHANG Kunyu, LONG Yu (89)
Sedimentary characteristics of carboniferous shale in Guizhou based on drilling information and geophysical comprehensive analysis	LU Yan, LIN Tuo, YUAN Kun, WANG Chao, GAO Cong (93)
Remote exploration of important overseas channel : Bab-el-Mandeb	YANG Yi, GUO Ya, JU Xing, XIAO Mengchu (99)
Seismic exploration : a good helper for shale gas resource evaluation	MO Guochen, ZHANG Qingyu, BA Junjie, JI Shaocong, LI Jingrui (103)
Analysis on microscopic characterization technology of shale gas reservoir	BA Junjie, ZHANG Qingyu, MO Guochen, JI Shaocong, NIE Guoquan (107)
Landscape types and aesthetic value of Huixian karst wetland in Guilin	ZOU Shengzhang, YANG Jing, ZHOU Changsong, FAN Lianjie, LU Li, LIN Yongsheng, WANG Jia (110)
Study on the construction and data sharing of karst field scientific observation and research stations	YANG Chen, BI Benteng, ZHOU Lixin (114)
Types and countermeasures of urban pavement collapse	WU Yuanbin, YIN Renchao (117)
Evaluation and analysis of rock mass quality of large chamber group in steep dip strata	YU Tiancheng, YUAN Ye (121)
Study on geological modeling of pore-fracture reservoir in Capella oilfield	WANG Bin (126)

Drilling problem and countermeasures of drilling technology in Guxu Mining Area of South Sichuan Coalfield	LONG Haitao , YANG Fuquan , WU Chenghao (135)
Study on the effect and mechanism of vanadium on the rolling process of strip steel	LEI Wujun (139)
Study and application of flushing fluid in drilling in complex formation of coal measure shale	LONG Haitao , YANG Fuquan , WU Chenghao , CAO Yong , HU Zhiming (143)
Construction and application of lockout and tagout process in device maintenance operations	HAI Yuren , WANG Wanlu , ZHANG Shuhong , ZHAO Xin , YUAN Wangsheng , HUA Ping (148)
Design and application of F5G all-optical industrial network in Baode Coal Mine	HAN Zhongli (153)
Research of the application of intelligent excavation workface in Baode Coal Mine	PU Lin (157)
Construction and implementation of mineral processing process service platform	AN Pengxiang , GUO Zhenyu , SONG Tao , LIU Daoxi (162)
Research and application of computer generated technology for mineral processing process flowchart	ZHANG Haiyang , SONG Xiaomei , YANG Jiawei (167)
Liquid level control method of lepidolite flotation system based on expert PID	ZHOU Ye , LIU Daoxi , LIU Meng (173)
Research on the application of flotation process control based on multiple data fusion controllers	LI Qiang , FAN Lingxiao , LIU Limin , SU Yong (177)
Experimental study on vibration response of flotation machine under inflating volume fluctuation based on the fluid-structure interaction	CHEN Qiang , ZHANG Fuya , SHI Shuaxing (182)
Application of mineral processing automation system in 25 000 t/d molybdenum ore project	WANG Haizhi , LIU Daoxi , ZHOU Ye (189)
Application of linear moving cutter sampling system in Bachagou Lead Zinc Mine dressing plant	ZHANG Ziyue , LIU Chaofan , TONG Hongxin , YUAN Jianming , ZHOU Cheng (193)
Research and application of tailings thickening optimization control technology	WANG Haizhi , LIU Daoxi , ZHOU Ye (199)
Fault prediction of slurry pump based on multi-scale characteristic analysis of stator current	YANG Tianhao , SONG Tao , YU Gang , WANG Qingkai , ZOU Guobin , LI Kang (204)
Application and development of an intelligent expert system for crushing process	YANG Shuliang , REN Linhai , LIU Daoxi (209)
Application of BOTA cyanide analyzer in gold mine	YANG Shuliang , DANG Tieshuan , LI Chuanwei , HAN Wen'ge , ZHANG Shaochen , SUN Jinlong , LIU Daoxi (213)
Exploration of intelligent integration of fully mechanized mining equipment based on programmable automation controller	PU Lin (217)
Development and application of tailings comprehensive utilization and filling system in Fushan Gold Mine	LIANG Chao , MA Hongwei (223)
Application of permanent magnet synchronous direct drive frequency conversion system in Bulianta Coal Mine 106 main conveyor belt	ZHANG Shun , BIAN Tao , LIU Yinbao (229)
Analysis and research on ground pressure monitoring data of a mine in Xinxiang	YEERBULAN Waheiti , SHI Feng (235)
Management of goaf in Chufeng Phosphate Mine and its in-process safety monitoring	MA Yutao , YUAN Bensheng , CAI Yongshun , WANG Ping (238)
Impact analysis of underground mining on surface based on long-term monitoring of microseismic	SUN Chengchao , WEI Xiaole , ZHOU Rui , WANG He (243)
Application and prospect of remote sensing technology in identification , investigation and monitoring of geological hazards in hydropower stations	HAN Longzu , JIA Dan (248)
Research on intelligent sensor technology and realization method for ethanol on-line monitoring	WANG Shaofang , YU Dan (252)
Research on path planning technology of intelligent forklift for lead ingot transportation based on improved ant colony algorithm	TANG Xiong , PENG Qiang , JIANG Zhi , JIANG Yong (257)
Analysis and research on anti interference of the intelligent crane PLC control system based on zinc electrodeposition in strong magnetic field environment	PENG Qiang , TAI Xuwei , JIANG Zhi , JIANG Yong (263)
Application research of single neuron controller in the main stripping process control of zinc stripping machine	LI Qiang , FAN Lingxiao , LIU Limin , SU Yong (267)
Research on the variation law of stripping load of intelligent zinc stripping machine based on single factor conditions	TANG Xiong , PENG Qiang , JIANG Yong (272)
Analysis and research on Siemens PLC fault diagnosis based on the control system of chamber pulse bag filter	PENG Qiang , TANG Xiong , JIANG Zhi , JIANG Yong (277)
Application of no coal pillar mining technology under huge hard conglomerate roof	LIU Xiaoyu , YU Shibo , WANG Zhixiu , CAO Cong (281)

Research and application of non pillar mining technology for cutting roof and retaining roadway in Rongkang Coal Mine	
..... LI Yongjin , WANG Yinghao , YANG Yuhua , GAI Qiukai , ZHANG Xingxing , GAO Yubing (288)	
Key control technology of no coal pillar mining method in thick layer and hard roof	
..... LIU Xiaoyu , YU Shibo , WANG Zhixiu , CAO Cong (295)	
Research and application of non-pillar mining technology with automatically formed roadway on thick sandstone roof in Zhujiamao Coal Mine	
..... GUO Zhongan , LI Xiangtong , ZHANG Xingxing , JIANG Haibin , SHANG Jianxue , GAO Yubing (303)	
Analysis of the impact of close distance coal seam mining on overlying goaf	BIAN Tao , LIU Jianyu , ZHANG Shun (309)
Research on reasonable width design of flexible formwork concrete wall and tunnel surrounding rock control technology	REN Chao (313)
Research on parameter design of rock roadway support structure in deep area	
..... YUAN Yifei , JIANG Guangpeng , LENG Xiaoliang , QIN Jiangeng (318)	
Study on key technology of end-mining penetration in shallow fully-mechanized mining face	XUE Gang , BIAN Tao , LI Jin'gang (323)
Study on mining method of gently inclined extremely thin ore body	
..... GUO Yumin , ZHONG Fangquan , ZHOU Jianrong , ZENG Xianjun , ZHANG Jimin , WU Yuping (328)	
Study on the roof and ground pressure behavior of entry affected by multiple mining	LIU Jianyu , BIAN Tao , HU Tianfeng (333)
Numerical simulation analysis of mining schemes for complex residual pillars in multiple intermediate sections	
..... HOU Guoquan , GUO Lijie , XU Wenyan (337)	
Study on the key technology of shallow-buried and super-long fully mechanized coal face	LI Ruilou , BIAN Tao (344)
Mining experience analysis of 22310 fully mechanized face in Bulianta Coal Mine	BIAN Tao , LI Jin'gang , HU Tianfeng (350)
Application of various geophysical methods in the prevention and control of coal mining face	YANG Zenglin , DU Ping (355)
Study on safety stoping technology of fully mechanized face with super mining height	LIU Zhaoxiang , BIAN Tao , LI Jin'gang (361)
Study on the structural parameters of the upward horizontal layered filling method in deep gold mine	
..... MA Hongwei , SONG Jiangong , DU Jiuhua , LI Han (366)	
Calculation method and application of pipe roof support parameters for first mining of deep broken orebody ...	LUO Lei , HU Bowen (376)
Application of downward horizontal layered drift cementing and filling mining method in Maoping lead zinc mine	
..... SUN Chengchao , LUO Lei , LIANG Yanbing (382)	
Numerical simulation and field application of sealing depth of gas extraction borehole in bedding	LIU Xuefu (386)
Analysis and prediction of rock burst tendency and rock burst grade in deep rock mass of Beijie Gold Mine	
..... SONG Hongyu , LIU Pengfei , AN Zhigang , XU Guizhuang (391)	
Comparative analysis of rockburst propensity of deep gold ore	LIANG Chao , YANG Tiejia , YANG Kai , YANG Haiqin (398)
Research on rockburst tendency analysis and control support design of deep gold mine	
..... DU Jiuhua , LIU Haibo , GAO Xinyu , ZHANG Kunming (404)	
Study on scale-up continuous experiment for fine sulfur flotation in a Cu-S mine	LI Hengqian (409)
Research on the application of a efficient copper collector in the flotation of a carbonaceous sulfide copper ore abroad	TAO Kun (413)
Research and countermeasures on the flotation effect of Jindi Molybdenum Ore	GAO Xuan , ZHANG Fuya (419)
Study on the effect of Fe ³⁺ on the inhibition behavior of chalcopyrite	
..... MA Yanhong , ZHU Yangge , WU Guiye , LIU Chongjun , LIU Huinan , LU Tong (423)	
Study on mineralogy characteristics of diamond from Shengli No.1 rock pipe in Mengyin County , Shandong Province	
..... WENG Liquan , WANG Chunhui , CHENG Xiaoxiao (429)	
Analysis and control of deep high temperature heat damage in Jiangjiayao Gold Mine	
..... YANG Tiejia , XU Tao , SHENG Xinli , DING Henggen (436)	
Study on the risk assessment of water inrush of karst deep mines in Northeast Yunnan , China	SUN Bangtao (440)
Identification of types of water hazards and the possibility of water inrush in mines	
..... YI Sihai , WANG Yun , YIN Shangxian , GAO Pengcheng , ZHONG Rui (447)	
Engineering case of high-density sludge method in the treatment of copper mine acid wastewater ...	YANG Xiaoming , HUANG Geli (451)
Research on groundwater leakage recharge mechanism based on river bed disturbance test	
..... LI Dongli , CHEN Qiang , ZHAO Zhengyou , ZHANG Aiwei (455)	
Mechanism and prevention measures of mine flood disaster in the first mining area of Dazhuyuan Bauxite Mine	
..... HUANG Guanghong , WU Yanping (462)	
Research and application of fine staged fracturing technology in high angle deviated well	
..... LIU Yi , LIU Ling , JIANG Ximei , YU Yangyang , WU Jun (470)	



液压支架领域应用



刮板机领域应用



摊铺机领域应用



防弹车领域应用

BISPLATE[®] 耐磨钢 经得起时间的检验



贝斯山钢（山东）钢板有限公司

源自澳大利亚 BISALLOY 品牌与山钢现代化工艺技术装备的强强结合，BISPLATE[®] 高强耐磨钢板广泛应用于矿山机械、工程机械等行业，BISPLATE[®] 优异的产品性能和卓越全方位的技术服务是提升您产品价值的理想选择。



微信公众号

地址：山东省济南市高新区舜泰广场 4 号楼
电话：0531-67606859
网址：www.bisjigang.com