



中文核心期刊 中国科技核心期刊 RCCSE 中国核心学术期刊 ISSN 1003-496X CN 21-1232/TD

煤矿安全

Safety in Coal Mines

井下巷道偏导支护方案设计及数值模拟分析

柠条塔井田南翼隐伏火烧区特征及富水性评价

基于测井资料与优化通用向量机的煤层气含量预测模型

基于脑电数据的不同轮班制度下煤矿一线从业人员疲劳评估



SAFETY
IN COAL MINES

11
2022

第53卷 第11期
2022年11月出版

ISSN 1003-496X



煤科集团沈阳研究院有限公司 主管 煤科集团沈阳研究院有限公司 主办

目次

试验·研究

- 高温三轴作用下无烟煤的物理特征研究 杜 廉,冯子军,徐晓鹏,董文强(1)
- 不同煤级煤纳米力学性能的 Micro-Raman 结构响应 韩雅婷,孙蓓蕾(7)
- 不同变质程度煤的化学结构红外光谱研究 郝长胜,袁迎春,贾廷贵,李 璞,王浩天(15)
- 煤岩渗流特征及应力敏感性实验研究 吕润生,李树武,薛 交,李 冰,任建刚(23)
- 酸液改性煤样吸附性能及分形特征研究 原文杰(31)
- 煤与瓦斯突出两相流运移衰减规律实验研究 王良成,石必明,刘 义,张雷林,钟 珍,张 煦(36)
- 双系煤层开采覆岩运移及采空区煤自燃危险区域研究 黄 帆,崔传波,邓存宝(42)
- 烟煤物理吸附氧气的吸附机理 华坤鹏,逯园坤(48)
- 岩石巷道锚喷复合隔热型混凝土材料研究 陶梓峰,张一萧,李 爽,王一隽,吴 兵(56)
- 基于颗粒流方法的煤层注浆细观力学特性模拟研究 刘 明,薛 冰,胡国建,陈永科(63)
- 不同加载速率下露天端帮胶结充填体的变形破坏试验研究 李 强,陈彦龙,徐 晖,吕昊岩,谢启航,陈元广,顾 军(70)

应用·创新

- 低渗透煤层气液两相复合压裂卸压增透技术 王泽东,刘国磊,崔 峯,李 明,张晓君,姜 涛(76)
- 煤与瓦斯突出危险区超前精细探测技术 朱南南,舒龙勇,张慧杰,陈晓军(83)
- 深埋大断面煤巷掘支协同技术及案例分析 杨国强(89)

设计·开发

- TDLAS 气体检测技术研究现状及其在煤矿中的应用 王金成,梁运涛,田富超(98)
- 基于云服务的煤矿防突信息管理系统 朱墨然(103)
- 基于控制安全的东林煤矿主要通风机监控系统改造 程玉龙(109)
- 基于微色谱和正压输气技术的煤矿自然火灾监测系统 李团结,白光星,张 琦,陈炜乐,邓 军,王彩萍,贾明铄(113)
- 新型低温化学氧自救呼吸器的防护性能研究 马云龙,马 龙,杨天天,黄启福(118)

矿用高压配电装置隔离触头优化设计

郭 波(126)

基于多语义情景协同感知的煤矿执法系统研究

张瑞庭,付 元(131)

煤矿场景下基于 RGBD 的视觉导航技术

王 鹏,赵红菊(136)

基于暂态特征参数的煤矿 10 kV 系统选择性漏电保护研究

郭润寿,曹继元(141)

定向钻杆辅助上杆及搬运技术

陈泽平(148)

煤矿坑道钻机用快速起下钻装置研制

刘 智(152)

分析·探讨

基于测井资料与优化通用向量机的煤层气含量预测模型 陈 涛,丁海琨,张占松,郭建宏,谭辰阳,周雪晴,朱林奇(157)

不同温度下气体竞争吸附特性对煤微观结构响应研究进展 李帅魁,姜文忠,田富超(167)

钻孔瓦斯抽采效果影响因素的响应面分析 龚选平,薛 生,韩柏青,年福田,郑春山,成小雨(176)

亭南煤矿工作面定向长钻孔“区域预抽+卸压防冲”可行性分析 沈建廷,王 飞,黄 鹤(184)

柠条塔井田南翼隐伏火烧区特征及富水性评价 侯恩科,杨斯亮,文 强,高利军,王建文,车晓阳,童仁剑,张 琦(191)

我国煤层底板突水机理与防治研究现状及展望 李 飞,孔德中,汪 洋,王玉成(200)

煤矿水害基本类型与动态演化类型划分 叶力进,许进鹏,刘统学,鹿存金(207)

大断面反井施工硐室围岩变形破坏机理及控制对策研究 李建华,谢福星,陈 凯,荆国业,王永峰,周 明(212)

井下巷道偏导支护方案设计及数值模拟分析 方珏静,杨 科,吕 鑫(219)

基于 SAR 技术的开采沉陷全盆地分区形变提取方法 邹英杰,范洪冬,孙 叶,许耀宗(229)

不同开采方向边帮煤开采边坡稳定性及控制措施 王文才,李俊鹏,王创业,陈世江,李仕璋(236)

抚顺东露天矿露井联采下边坡变形机理研究 任 健,张 晶,魏国龙,崔 原(244)

监察·管理

基于 G1-DEMATEL-测度量化的煤矿应急救援协同能力评价模型 梁 闫,陈 炜,张永领,郭 莹(254)

基于脑电数据的不同轮班制度下煤矿一线从业人员疲劳评估 李红霞,陈 磊,田方圆,李国为,鲁 宇(259)

CONTENTS

Test·Research

Study on physical characteristics of anthracite under high temperature triaxial action

DU Geng, FENG Zijun, XU Xiaopeng, DONG Wenqiang(1)

Micro-Raman structural responses of nano-mechanical properties of different coal grades

HAN Yating, SUN Beilei(7)

Infrared spectral research on chemical structure of coal with different levels of metamorphism

HAO Changsheng, YUAN Yingchun, JIA Tinggui, LI Xun, WANG Haotian (15)

Experimental study on coal seepage characteristics and stress sensitivity LYU Runsheng, LI Shuwu, XUE Jiao, LI Bing, REN Jiangang(23)

Study on adsorption property and fractal characteristic of acid modified coal samples

YUAN Wenjie(31)

Experimental study on migration attenuation law of two-phase flow in coal and gas outburst

WANG Liangcheng, SHI Biming, LIU Yi, ZHANG Leilin, ZHONG Zhen, ZHANG Yu(36)

Research on overlying strata movement and dangerous area of coal spontaneous combustion in goaf in dual-system coal seam mining

HUANG Fan, CUI Chuanbo, DENG Cunbao(42)

Adsorption mechanism of physical adsorption of oxygen by bituminous coal

HUA Kunpeng, LU Yuankun(48)

Research on composite insulating sprayed concrete material for rock roadway

TAO Zifeng, ZHANG Yixiao, LI Shuang, WANG Yijuan, WU Bing(56)

Simulation of micromechanical characteristics of coal seam grouting based on particle flow method

LIU Ming, XUE Bing, HU Guojian, CHEN Yongke(63)

Experimental study on deformation and failure of cemented filling body in open-pit end slope under different loading rates

LI Qiang, CHEN Yanlong, XU Kun, LYU Haoyan, XIE Qihang, CHEN Yuanguang, GU Jun(70)

Application·Innovation

Pressure relief and permeability enhancement technology of gas-liquid composite fracturing in low permeability coal seam

WANG Zedong, LIU Guolei, CUI Yu, LI Ming, ZHANG Xiaojun, JIANG Tao(76)

Advanced fine detection technology of coal and gas outburst danger area

ZHU Nannan, SHU Longyong, ZHANG Huijie, CHEN Xiaojun(83)

Cooperation technology of driving and supporting in large section coal roadway of deep mine and case analysis

YANG Guoqiang(89)

Design·Development

Research current situation of TDLAS gas detection technology and its application in coal mine

WANG Jincheng, LIANG Yuntao, TIAN Fuchao(98)

Coal mine outburst prevention information management system based on cloud service

ZHU Moran(103)

Renovation of main fan monitoring system of Donglin Coal Mine based on data safety

CHENG Yulong(109)

Coal mine spontaneous combustion fire monitoring system based on micro gas chromatograph and positive pressure gas delivery technology

LI Tuanjie, BAI Guangxing, ZHANG Qi, CHEN Weile, DENG Jun, WANG Caiping, JIA Mingshuo(113)

Study on protective performance of the latest low temperature chemical oxygen self-rescuer

MA Yunlong, MA Long, YANG Tiantian, HUANG Qifu(118)

Optimal design for isolation contact of mine-used high voltage distribution device

GUO Bo(126)

Research on coal mine law enforcement system based on multi-semantic scene collaborative perception

ZHANG Ruiting, FU Yuan(131)

Visual navigation technology based on RGBD in coal mine scene

WANG Peng, ZHAO Hongju(136)

Research on selective leakage protection of 10 kV system based on transient characteristic parameters in coal mine

GUO Runshou, CAO Jiyuan(141)

Auxiliary adding and transporting technology of directional drill pipes

CHEN Zeping(148)

Development of fast tripping device for coal mine tunnel drilling rig

LIU Zhi(152)

Analysis•Discussion

Prediction model of CBM content based on logging data and optimized general vector machine

CHEN Tao, DING Haikun, ZHANG Zhansong, GUO Jianhong, TAN Chenyang, ZHOU Xueqing, ZHU Linqi(157)

Research progress on response of gas competitive adsorption characteristics on coal microstructure at different temperatures

LI Shuaikui, JIANG Wenzhong, TIAN Fuchao(167)

Response surface analysis of influencing factors of borehole gas extraction effect

GONG Xuanping, XUE Sheng, HAN Baiqing, NIAN Futian, ZHENG Chunshan, CHENG Xiaoyu(176)

Feasibility analysis of “regional pre-pumping and pressure relief and anti-impact” of directional long borehole in Tingnan Coal Mine working face

SHEN Jianting, WANG Fei, HUANG He(184)

Characteristics and water abundance evaluation of concealed burning area in southern of Ningtaota Coal Mine

HOU Enke, YANG Siliang, WEN Qiang, GAO Lijun, WANG Jianwen, CHE Xiaoyang, TONG Renjian, ZHANG Qi(191)

Research status and prospect of water inrush mechanism and prevention of coal seam floor in China

LI Fei, KONG Dezhong, WANG Yang, WANG Yucheng(200)

Basic types of mine water disasters and classification of dynamic evolution types

YE Lijin, XU Jinpeng, LIU Tongxue, LU Cunjin(207)

Research on failure mechanism and control measures of surrounding rock in large section raise shaft construction chamber

LI Jianhua, XIE Fuxing, CHEN Kai, JING Guoye, WANG Yongfeng, ZHOU Ming(212)

Design and numerical simulation analysis of guide support scheme for underground roadway

FANG Juejing, YANG Ke, LYU Xin(219)

A method for extracting sub-regional deformation of mining subsidence based on SAR technology

ZOU Yingjie, FAN Hongdong, SUN Ye, XU Yaozong(229)

Slope stability and control measures of side slope in different mining directions

WANG Wencai, LI Junpeng, WANG Chuangye, CHEN Shijiang, LI Shizhang(236)

Study on deformation mechanism of slope under combined open-pit and underground mining in Fushun East Open-pit Mine

REN Jian, ZHANG Jing, WEI Guolong, CUI Yuan(244)

Supervision•Management

Evaluation model of coal mine emergency rescue collaborative ability based on G1-DEMATEL-measurement quantification

LIANG Yan, CHEN Hao, ZHANG Yongling, GUO Ying(254)

Fatigue assessment of front-line employees in coal mines under different shift systems based on EEG data

LI Hongxia, CHEN Lei, TIAN Fangyuan, LI Guowei, LU Yu(259)