

煤矿安全

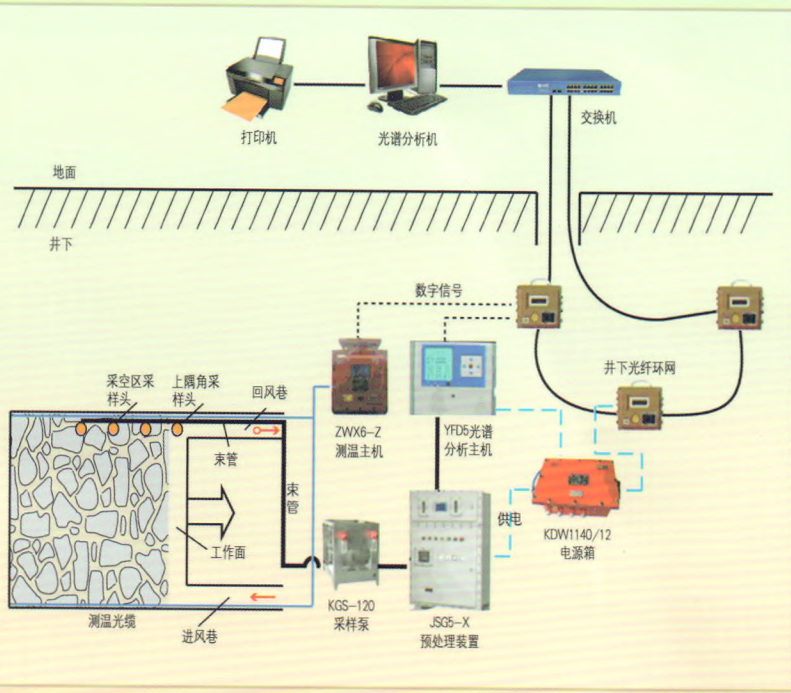
SAFETY IN COAL MINES

ISSN 1003-496X
CN 21-1232/TD
4
2017
Vol. 48 No. 4

煤科集团沈阳研究院有限公司 主办 1970年创刊·月刊

井下自然发火综合监测系统

井下自然发火综合监测系统采用光谱气体分析和光纤测温技术，解决了气体长距离传输气样变化的难题，乙烯监测精度可达 10^{-7} 。主体设备为本质安全型，配套设备完善，可结合历史数据综合分析，预警准确、安全性好、可靠性高，可与防灭火装备联动，实现了管控一体化和自动化，体现了“预防为主”的自燃火灾防控原则，已成功应用于神华、陕煤、龙煤等多家大中型煤炭企业。



系统参数		
光纤测温参数	测温距离/km:	8
	测温精度/°C:	±1
	测温分辨率/m:	±1
	测温通道数/路:	6
分析气体种类	测量范围	允许误差
甲烷/%	0~1.0	±0.06
	1.0~100.0	真值的±6%
一氧化碳浓度/ 10^{-6}	0~100	±4
	100~500	真值的±5%
二氧化碳浓度/%	500~10000	真值的±10%
	0~0.50	±0.02
氧气浓度/%	0.50~20.0	±(0.05+真值的5%)
	0~25.0	±3%F.S
乙烯浓度/ 10^{-6}	0~2.0	±0.5
	2.0~100.0	±(0.5+真值的10%)

ISSN 1003-496X



煤科集团沈阳研究院有限公司
CCTEG SHENYANG RESEARCH INSTITUTE

地址：辽宁省抚顺经济开发区滨河路11号
联系人：肖先生 联系电话：13304938017 传真：024-56613536

主管单位

煤科集团沈阳研究院有限公司

主办单位

煤科集团沈阳研究院有限公司

主 编 罗海珠

副 主 编 梁绍权

编辑部主任 王福厚

广告发行主管 刘明智

出版单位 《煤矿安全》编辑部

地 址 辽宁省抚顺市经济开发区
滨河路11号

邮政编码 113122

电 话 (024)56616988 56616987
56616981 56613526

电子信箱 mkaq@163.com
mkaqgg@163.com(广告)

网 址 www.mkaqzz.com

发行范围 公开发行

发行单位 《煤矿安全》编辑部
或全国各地邮局

邮发代号 8-293

印刷单位 煤炭科学研究总院抚顺分院
胶版印刷厂

中国标准连续出版物号 ISSN 1003-496X
CN 21-1232/TD

企业法人营业执照注册号 210400000026129

商标注册证 第1144537号

出版日期 4月20日

定 价 20.00元

北京联络处 (010)64464228

目 次

试验·研究

- 淮北矿区许疃矿构造煤类型及其孔隙特征研究
王林杰,常溪溪,开 宁,唐润池,汪吉林(1)
- 低渗煤层气注热开采渗透规律研究
王芦笛(5)
- 水力压裂增透技术在鱼田堡煤矿低透气性突出煤层中的试验研究
袁光明,陈玉涛,田卫东,黄文祥(9)
- 气液两相射流冲蚀性能的研究
魏思祥,杨 威,乔时和(13)
- 点火能量对煤粉爆炸行为的影响
崔 瑞,程五一(16)
- 产涡凝聚区流场及颗粒运动轨迹模拟研究 张江石,朱 文,吴龙刚,吕昱昱,马 爽(20)
- 贫氧条件下煤自燃特性的热重-红外实验研究 邓 军,杨俊义,张玉涛,李亚清(24)
- 采动诱发断层活化规律的试验研究
朱砚秋,杨 力(29)
- 松软构造煤负压抽采下瓦斯渗流特性实验研究
李兴龙,崔学锋(32)
- 煤自燃降温过程实验研究 金永飞,仝玉轩,刘文永,张 泽,邓润义(36)
- 矿井带式输送机火灾蔓延规律数值模拟研究 王伟峰,马 砾,王刘兵,张李荣(40)
- 基于 SIGMA/W 的露天矿软弱基底排土场安全距离研究 高 菲,曹兰柱,王 东(44)
- 井下烟道在巷道火灾中的作用数值模拟 张辛亥,丁 峰,张玉涛,万 旭,苗于惠(48)
- 厚松散层矿区采动程度对地表沉降特征的影响
杨军伟,侯得峰(52)
- 煤矿冻结立井爆破雷管微差延时识别研究 付晓强,杨立云,陈 程,陈帅志,陈岐范(55)
- 采空区下特厚煤层首采综放工作面顶板断裂的微震监测研究
邓维元,康天合(59)

技术·创新

- 下保护层开采卸压瓦斯分布预测及抽采技术 郭 靖,索若洪(63)
- 新安煤田高压水射流石门揭煤快速消突技术及应用
张许乐,卢建收(67)
- 近距离煤岩独巷同向递进快速消突技术
苏伟伟,王春光(71)
- 色连二矿 12205 工作面收作期间防火技术 文 虎,胡 伟,刘文永,张 泽,程双礼(75)
- 近煤层岩巷掘进工作面探煤技术应用
贾晓亮(79)
- 动力扰动下锚-喷-注一体化围岩加固技术
黄海余(83)
- 坚硬顶板下综放工作面过空巷关键技术
孙晓明,张 勇,吴修光,桂 兵,卢 昊,杨鸣鹤(87)
- 基于切顶卸压法的巷道底鼓防治技术
姚安涛,吴 璋,杨 栋,邵红旗(92)

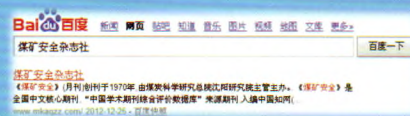
设计·开发

- 井下防爆柴油机废气处理箱的结构研究 杨世文,邹 润,苏铁熊,张 翼,韩文艳(95)
- 基于 Android 的可定位自动瓦斯检查系统
姜孟冯(99)
- 基于采掘进度监测的煤与瓦斯突出预警方法和系统
康建宁,马国龙(103)
- 基于瓦斯氧化技术的井筒加热系统
王广宏(107)
- 基于 MEMS 惯性传感器的井下人员定位系统
李世银,王 铨,张 楠(111)
- 光干涉甲烷传感器标校与非线性补偿研究
翟 波,戴 峻,王晓虹(115)
- 智能变频器在刮板输送机中的应用
刘建华,赵 岩,崔明亮(118)
- 采煤机自供电监测系统的无线传感节点设计
杨晓洁,郭 涛,郭利强,韩建强(122)
- 综掘工作面新型风幕湿式离心除尘系统
张 甜,金龙哲,高 娜(125)

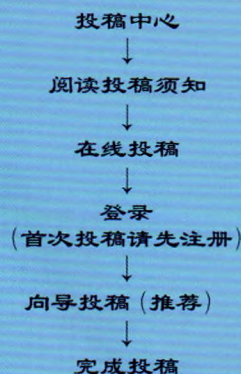
应用·实践

- 复杂区域综采工作面沿空开采 CO 气体异常原因分析及防治
杨后勤,陈国庆,刘琛琛,雷 霆,邱 晗(129)

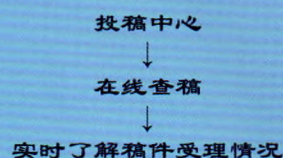




投稿流程:



查稿流程:



注: 投稿请用IE浏览器

本刊声明:

- ☆ 本刊所有来稿自投稿之日起3个月内未收到“稿件采用通知书”, 作者可另行处理, 在此之前请勿一稿多投。
- ☆ 根据编辑加工原则, 本刊可能会对采用的稿件进行必要的删改, 不同意删改的, 请在投稿时声明。
- ☆ 本刊有出电子版、网络版、与网站技术交流和与各数据库合作的权利, 作者著作权使用费(包括上述几种方式), 并与本刊稿酬一次性付清。如作者不同意将文章以上述形式收录, 请在来稿时声明。

基于新型粉煤灰-水泥泡沫材料的采空区遗煤阻燃技术及应用

景长宝, 王海宾, 杨瑞斌(132)

断层带开采综放工作面回撤期间CO来源分析与论证

杨峰(136)

多源异构变形预测模型融合方法在开采沉陷动态预测中的应用

吕挑, 王磊, 李楠(140)

双工作面均压通风防火技术在板定梁塔煤矿的应用

王海生(144)

新型无机注浆材料在大采高工作面过断层注浆加固中的应用

熊祖强, 王凯, 丁子文(148)

FLAC^{3D}模型塑性区三维可视化在采空区围岩裂隙演变中的应用

王志强, 郭磊, 刑瑞军, 刘宏军, 马奇飞(152)

分析·探讨

冲击地压煤层高位钻孔抽采参数优化研究

许幸福, 薛伟超, 李艳增, 王依磊, 王同友, 王海宾(157)

平山煤矿采空区高位钻孔瓦斯抽放数值模拟

高玉坤, 肖善林, 闫建浩, 黄志安, 王春节, 付明明(160)

保护层开采后回采区域防突效果分析

王志权, 常源, 薛世鹏, 徐利, 王永敬(164)

基于煤体流变最小耗能的矿井构造煤形成分布探讨

杨胜如(168)

基于多层流模型的煤层注水系统时效可靠性分析

张少民, 于师建, 宋璐璐, 施学通(172)

瓦斯与火复合灾害工作面合理通风方式研究

陆卫东, 郝朝瑜, 李冬辉, 邸帅(176)

矿井瞬变电磁法反演方法研究进展与展望

周金, 程久龙, 温来福(180)

抽放条件下采空区自然危险区域分布

陈晓坤, 贾勇锋, 费金彪(184)

基于Abaqus的巷道围岩调热圈温度分布数值模拟及经济性评价

朱帅, 吴世跃, 朱世昕(188)

临汾区块煤层气排采中煤粉产出的影响因素及其关系

魏迎春, 张傲翔, 李超, 崔宝磊, 曹代勇(191)

综放工作面过单面见方危险区域冲击地压防治效果分析

张锋, 邹银辉, 杨贵儒(195)

多软弱夹层的巷道顶板稳定特性及支护设计

王辉, 杨双锁(199)

煤矿掘进巷道风筒附壁距离对风流场的影响

龚晓燕, 莫金明, 惠双琳, 张欣怡, 吴悦, 薛河(203)

含软弱夹层边坡破坏过程及其影响因素分析

王哲, 韩超超, 王大国, 何治良, 谭国荣, 徐兵(207)

松散层在埋深中占比对地表移动变形特征的影响

汤铸, 陈才贤, 赵忠义(211)

考虑非线性峰后损伤的圆形巷道围岩稳定性分析

刘怀付, 范浩(215)

特厚煤层巷道锚杆锚索预紧力对支护结构稳定性的影响

张锁, 苏学贵, 杨宗一, 杜献杰, 王堂, 张赞(219)

国内某露天矿边坡雷达监测数据分析

韦忠跟, 王立文, 徐玉龙(223)

监察·管理

煤矿瓦斯爆炸险兆事件致因模型构建

田水承, 梁清, 马文赛, 樊尧, 郝倩(226)

对煤矿安全文化建设瓶颈的分析

宋建萍(230)

中美煤矿安全生产水平平等比较与预测

聂百胜, 黄鑫, 薛斐, 孟洋洋, 陈江, 刘晓兵(234)

提升人员竖井专业安全诊断评估

李忠奎, 叶锦娇(238)

煤矿井下系统职业病危害风险模糊评价

周叶(241)

基于通径分析的露天矿违章诱发事故的驱动力研究

孟爱国, 张树福, 崔玉强(245)

SAFETY in COAL MINES

Monthly (Started in 1970)

April 2017

Vol.48, No.4 (Total 513)

Competent Authority

CCTEG Shenyang Research Institute

Sponsor

CCTEG Shenyang Research Institute

Chief Editor LUO Haizhu

Deputy Chief Editor LIANG Shaoquan

Editorial Director WANG Fuhou

Advertisement & Distribution LIU Mingzhi

Publisher Editorial Office of
《SAFETY in COAL MINES》

Address No.11 of Binhe Road, Fushun
Economic Developing-area, Liaoning, China

Post code 113122

Tel 86-24-56616988 56616987
56616981 56613526

E-Mail mkaq@163.com
mkaqgg@163.com (advertisement)

Website www.mkaqzz.com

Issuer Public Offering

Subscribe(to) Editorial Office of 《SAFETY in
COAL MINES》 or Local Post Offices

Postal Distribution Code 8-293

Printed by Offset Printing Factory of
Fushun Branch of CCRI

China Standard Serial
Numbering ISSN 1003-496X
CN 21-1232/TD

Business License No. 210400000026129

Trademark Registered
Certificate No.1144537

Publishing Date April 20

Price 20 yuan

Beijing Liaison Office 86-10-64464228

万方数据

CONTENTS

Test·Research

Study on Types of Tectonic Coal from Xutuan Coal Mine in Huaibei Coalfield and Its Pore Characteristics
WANG Linjie, CHANG Xixi, QI Ning, TANG Runchi, WANG Jilin(1)

Study on Seepage Laws in Coal Bed Methane Mining Through Injecting Thermal in Low Permeability
Coal Seam WANG Ludi(5)

Experimental Study on Hydraulic Fracturing Technology in Outburst Coal Seam with Low Permeability in
Yutianbao Mine YUAN Guangming, CHEN Yutao, TIAN Weidong, HUANG Wenxiang(9)

Study on Erosion Capability of Gas-liquid Two-phase Jet WEI Sixiang, YANG Wei, QIAO Shihe(13)

Influence of Ignition Energy on Explosion Behavior of Pulverized Coal CUI Rui, CHENG Wuyi(16)

Simulation Study on Flow Field and Particle Trajectory of Vortex Condensation Region
ZHANG Jiangshi, ZHU Wen, WU Longgang, LYU Ganggang, MA Shuang(20)

Thermogravimetric-infrared Experimental Research on Coal Spontaneous Combustion Under the Condition
of Lean Oxygen DENG Jun, YANG Junyi, ZHANG Yutao, LI Yaqing(24)

Experimental Study on Laws of Fault Activation Induced by Mining ZHU Yanqiu, YANG Li(29)

Experiment Research on Gas Permeability of Soft Tectonic Coal Under the Condition of Negative Pressure
LI Xinglong, CUI Xuefeng(32)

Experimental Study on Spontaneous Cooling Process of Coal
JIN Yongfei, TONG Yuxuan, LIU Wenyong, ZHANG Ze, DENG Runyi(36)

Numerical Simulation of Spreading Laws of Coal Mine Belt Conveyor Fire
WANG Weifeng, MA Li, WANG Liubing, ZHANG Lirong(40)

Research on Safe Distance of Soft Basement Dump in Open Pit Mine Based on SIGMA/W
GAO Fei, CAO Lanzhu, WANG Dong(44)

Numerical Analysis of Underground Flue Effect on Mine Roadway Fire
ZHANG Xinhai, DING Feng, ZHANG Yutao, WAN Xu, MIAO Yuhui(48)

Influence of Mining Degree on Surface Subsidence Characteristics Under the Condition of Mining Thick
Unconsolidated Layers YANG Junwei, HOU Defeng(52)

Research on Detonator Millisecond Delay Time Recognition in Coal Mine Freezing Vertical Shaft Blasting
FU Xiaoqiang, YANG Liyun, CHEN Cheng, CHEN Shuaizhi, CHEN Qifan(55)

Micro Seismic Monitoring Research on Roof Fracture at the First Fully Mechanized Mining Face in
Special Thick Coal Seam Under Mined-out Area DENG Weiyuan, KANG Tianhe(59)

Technology·Innovation

Prediction of Pressure Relief Gas Distribution and Extraction Technology for Lower Protective Seam Mining
GUO Jing, SUO Ruoqi(63)

Fast Outburst Elimination Technology by High-pressure Water Jet Cross-cut Coal Uncovering in Xin'an
Coal Field and Its Application ZHANG Xule, LU Jianshou(67)

Rapid Outburst Elimination Technology for Closed Distance Coal and Rock Roadways Going Forward
One by One SU Weiwei, WANG Chunguang(71)

Fire Prevention Technology at 12205 Working Face of Selian No.2 Coal Mine in Finished Period
WEN Hu, HU Wei, LIU Wenyong, ZHANG Ze, CHENG Shuangli(75)

Application of Coal Detection Technology in Close Coal Seam Rock Drift Heading Face
JIA Xiaoliang(79)

Anchoring-spraying-grouting Integrated Surrounding Rock Reinforcing Technology Under Dynamic
Disturbance HUANG Haiyu(83)

Key Technology of Fully Mechanized Workface Passing Through Abandoned Roadway with Hard Roof
SUN Xiaoming, ZHANG Yong, WU Xiuguang, GUI Bing, LU Hao, YANG Minghe(87)

Preventing and Controlling Technology of Floor Heave Based on Roof Cutting and Pressure Releasing in
Coal Mine Roadway YAO Antao, WU Zhang, YANG Dong, SHAO Hongqi(92)

Design·Development

Structure Study on Waste Gas Treatment Tank of Underground Explosion-proof Diesel Engine
YANG Shiwen, ZOU Run, SU Tiexiong, ZHANG Yi, HANG Wenyan(95)

The Locatable Automatic Gas Inspection System Based on Android Platform JIANG Mengfeng(99)

Coal and Gas Outburst Early-warning Method and System Based on Mining Progress Monitoring
KANG Jianning, MA Guolong(103)

Shaft Heating System Based on Gas Oxidation Technology WANG Guanghong(107)

Underground Personnel Positioning System Based on MEMS Inertial Sensors
LI Shiyin, WANG Quan, ZHANG Nan(111)

Research on Calibration and Nonlinear Compensation of Light Interference Methane Sensor
ZHAI Bo, DAI Jun, WANG Xiaohong(115)

Application of Intelligent Frequency Converter in Scraper Conveyor
LIU Jianhua, ZHAO Yan, CUI Mingliang(118)

Wireless Sensor Node Design for Self-powered Monitoring System of Shearer
YANG Xiaojie, GUO Tao, GUO Liqiang, HAN Jianqiang(122)

A New Type of Air Curtain Wet-type Centrifugal Dust Removal System for Fully Mechanized Excavation
Face ZHANG Tian, JIN Longzhe, GAO Na(125)



煤科集团沈阳研究院
有限公司

系列产品

- ◆ 紧急避险系统
- ◆ 煤矿安全生产监控系统及人员定位系统
- ◆ 煤矿瓦斯抽放配套装备
- ◆ 矿井通风防灭火装备
- ◆ 煤矿瓦斯基础参数测定仪器
- ◆ 矿山救护装备
- ◆ 低压供电系统配套装备
- ◆ 矿用钻机及配套装置
- ◆ 露天矿卡车调度系统及边坡监测装备
- ◆ 模拟仿真训练系列

立足服务

保障安全

依靠创新

共同发展

WWW.SYCCRI.COM

辽宁 抚顺 经济开发区滨河路11号
T 024-56616909 F 024-56616800

辽宁 沈阳 东滨河路108号
T 024-24117298 F 024-24117568



Application·Practice

- Analysis and Prevention of CO Gas Abnormal Reasons in Complex Working Face Mining Along Goaf
YANG Houqin, CHEN Guoqing, LIU Chenchen, LEI Ting, QIU Han(129)
- Retardant Technology and Application for Residual Coal in Goaf Based on Pulverized Fuel Ash-cement Foam Material
JING Changbao, WANG Haibin, YANG Ruibin(132)
- Carbon Monoxide Source Analysis and Demonstration in Fault Zones During Full-mechanized Caving Face Retreatment Period
YANG Feng(136)
- Application of Multi-source Heterogeneous Deformation Prediction Model Fusion Method in Dynamic Prediction of Mining Subsidence
LYU Tiao, WANG Lei, LI Nan(140)
- Application of Pressure Balancing Ventilation for Fire Preventing and Extinguishing at Double Working Face of Bandingliangta Coal Mine
WANG Haisheng(144)
- Application of a Kind of New Type Inorganic Grouting Material in Grouting Reinforcement of Passing Through Fault at Large Mining Height Working Face
XIONG Zuqiang, WANG Kai, DING Ziwen(148)
- Application of 3D Visualization of FLAC3D Model Plastic Zone in Crack Evolution of Goaf Surrounding Rock
WANG Zhiqiang, GUO Lei, XING Ruijun, LIU Hongjun, MA Qifei(152)

Analysis·Discussion

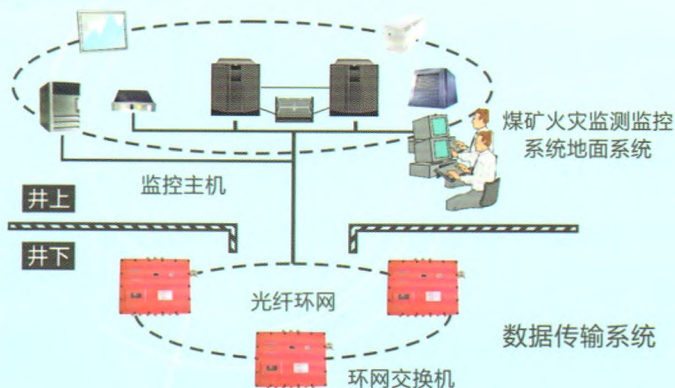
- Study on Parameters Optimization of High Level Extraction Boreholes in Rock Burst Seam
XU Xingfu, XUE Weichao, LI Yanzeng, WANG Yilei, WANG Tongyou, WANG Haibin(157)
- Numerical Simulation on Goaf Gas Drainage of High-level Borehole in Pingshan Coal Mine
GAO Yukun, XIAO Shanlin, YAN Jianhao, HUANG Zhi'an, WANG Chunjie, FU Mingming(160)
- Analysis of Outburst Prevention Effect of Protective Seam After Mining
WANG Zhiquan, CHANG Yuan, XUE Shipeng, XU Li, WANG Yongjing(164)
- Discussion on Formation and Distribution of Mine Tectonic Coal Based on the Minimum Rate of Energy Dissipation and Rheology of Coal
YANG Shengru(168)
- Reliability Analysis of Coal Seam Water Injection System Based on Multilevel Flow Models
ZHANG Shaomin, YU Shijian, SONG Lulu, SHI Xuotong(172)
- Research on Reasonable Ventilation Mode of Working Face with Gas and Fire Compound Disaster
LU Weidong, HAO Chaoyu, LI Donghui, DI Shuai(176)
- Research Progress and Prospect on Inversion Methods of Mine Transient Electromagnetic Method
ZHOU Jin, CHENG Jiulong, WEN Laifu(180)
- Distribution of Spontaneous Combustion Dangerous Area Under the Condition of Gas Drainage
CHEN Xiaokun, JIA Yongfeng, FEI Jinbiao(184)
- Numerical Simulation and Economic Evaluation of Temperature Distribution of Heat Adjustment Circle of Wall Rock in Tunnel Based on Abaqus
ZHU Shuai, WU Shiyue, ZHU Shixin(188)
- Influencing Factors of Pulverized Coal Output and Their Relationship During Coalbed Methane Drainage in Linfen Block
WEI Yingchun, ZHANG Aoxiang, LI Chao, CUI Baolei, CAO Daiyong(191)
- Analysis of Rock Burst Prevention Effect of Fully Mechanized Caving Face Passing Through Single Square Danger Zone
ZHANG Feng, ZOU Yinwei, YANG Guiru(195)
- Stability Characteristics and Support Design of Roadway Roof Contained Multiple Soft Inter-layers
WANG Hui, YANG Shuangshuo(199)
- Influence of Ventilation Duct Attachment Distance on Wind Field in Coal Mine Excavation Roadway
GONG Xiaoyan, MO Jinming, HUI Shuanglin, ZHANG Xinyi, WU Yue, XUE He(203)
- Analysis of Failure Process and Its Influencing Factors of Slope with Soft Interlayer
WANG Zhe, HAN Chaochao, WANG Daguo, HE Zhiliang, TAN Guorong, XU Bing(207)
- Influence of Loose Bed Accounted for Depth on Surface Movement Deformation Characteristics
TANG Zhu, CHEN Caixian, ZHAO Zhongyi(211)
- Stability Analysis on Circular Roadway Considering Nonlinear Post Peak Damage
LIU Huaifu, FAN Hao(215)
- Influence of Bolt and Cable Anchor Pre-tension Stress on Stability of Support Structure in Extra Thick Coal Seam Roadway
ZHANG Suo, SU Xuegui, YANG Zongyi, DU Xianjie, WANG Tang, ZHANG Zan(219)
- Analysis of Slope Radar Monitoring Data for a Domestic Open-pit
WEI Zhonggen, WANG Liwen, XU Yulong(223)

Supervision·Management

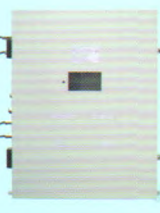
- Causal Model Construction of Coal Mine Gas Explosion Near-miss Incidents
TIAN Shuicheng, LIANG Qing, MA Wensai, FAN Yao, HAO Qian(226)
- Analysis on the Bottleneck of Coal Mine Safety Culture Construction
SONG Jianping(230)
- Comparison and Forecast of Coal Mine Safety Production Level in China and America
NIE Baisheng, HUANG Xin, XUE Fei, MENG Yangyang, CHEN Jiang, LIU Xiaobing(234)
- Professional Safety Diagnostic Evaluation for Hoisting Personnel Shaft
LI Zhongkui, YE Jinjiao(238)
- Fuzzy Evaluation of Occupational Hazard Risk in Coal Mine Underground System
ZHOU Ye(241)
- Study on Driving Force of Violation Behavior Induced Accidents in Open Pit Mine Based on Path Analysis
MENG Aiguo, ZHANG Shufu, CUI Yuqiang(245)

万方数据

矿用分布式激光火情监测系统



光纤测温控制柜



气体检测主机



采样抽气泵
(预抽抽气泵
和测量抽气泵)

光缆分线盒

束管

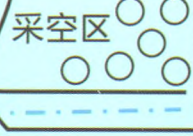
运输巷

感温光缆1

感温光缆2

束管

轨道巷



矿用分布式激光火情监测系统是为解决现有束管系统在煤矿采空区火情监测中响应慢、管路维护困难、检测精度无法保证的缺陷,在井下采面利用光纤传感技术和激光调制吸收光谱技术连续监测采空区 CH_4 、 CO 、 C_2H_2 、 CO_2 、 O_2 等气体浓度和采空区温度,实时将采集的数据通过光纤环网上传至地面,利用火情监测系统软件实现监测、预警、防火效果评估。

性能特征

- 最完善的火灾预测模型,包含温度、 CO 、 CH_4 、 C_2H_4 、 C_2H_2 、 O_2 、 CO_2 ,集分布式光纤传感和激光多气体检测技术为一体。
- 气体检测采用高分辨率激光吸收光谱技术,消除气体交叉干扰,测量不受粉尘、水汽的影响。
- 温度检测采用光纤传感技术,本质安全,铺设简单,无需维护,测量准确,可对采空区发火点精确定位。
- 本地实时连续测量,响应速度快,不受管路影响。

WWW.GLTECH.CN

TEL: 0371-6785 8887 E-MAIL: info@gltech.cn CSH: 400-0057-577

ADD: 郑州高新技术产业开发区长椿路十号