

第56卷第3期 Vol.56, No.3

全国中文核心期刊

中国科技核心期刊

CSCD来源期刊

ISSN1009-6582

CN51-1600/U

现代隧道技术

MODERN TUNNELLING TECHNOLOGY

3

2019

中铁西南科学研究院有限公司
China Railway Southwest Research Institute Co.,Ltd.

中国土木工程学会隧道及地下工程分会
Chinese Society for Tunnelling and Underground Works,CCES



ISSN 1009-6582



中老铁路蓬山隧道位于老挝第二大城市琅勃拉邦省境内，为设计时速160 km的单线隧道，全长3 487 m，最大埋深340 m，最小埋深10 m。隧道穿越岩溶、仰坡顺层、大断层等不良地质地段。中铁科研院西南院检测中心负责该隧道质量的第三方检测工作。该隧道于2019年6月6日顺利贯通。



目次

研究与探讨

纤维混凝土隧道衬砌力学性能研究综述	崔光耀 孙凌云 左奎现等	1
大埋深、高地应力地下洞室群围岩破坏机理及应对措施研究	孙会想	8
基于GOCAD的TRT测试成果解译方法研究	原先凡 廖丹	18
成都地铁龙泉山隧道瓦斯赋存特征分析与预测评价	张小林 蔡建华 廖烟开	25
基于全景展开图像的隧道衬砌渗漏水数字化识别方法研究	彭斌 祝志恒 阳军生等	31
老城区双护盾TBM地铁工程筹划技术研究	黄银钉	38
城市轨道交通工程BIM技术应用推广实施方法研究	张金伟 刘志广 路清泉等	45
基于PSO-BP神经网络的城市综合管廊经济生态评价指标体系	薛刚 张夏	53
基于物联网技术的地铁巡检信息化系统构想	温晓凯 孙坤 刘亮	59

分析与计算

隧道对地表地震动放大作用的研究	孙强强 薄景山 刘红帅等	65
强震作用下支护-结构一体化管幕预制法地铁车站地震响应研究	李积栋 油新华	72
沟槽式深覆土减载明洞衬砌结构受力特性及截面设计研究	卓彬 李盛 何川等	79
斜井盾构接头及推力配置研究	陈明 管会生 谢友慧	88
沈阳城区地层顶管顶力监测分析研究	王雪亮 纪新博 夏梦然等	95
大倾角回采巷道松动圈支护优化	曾来 刘勇 杨红运等	102
软土地区盾构穿越待改建老旧大堤的变形控制研究	季昌 王力	108
隧道型钢拱架打孔对其刚度影响分析	王玥 史继尧	118
漂卵石隧道自进式中空注浆锚杆力学性能测试分析	曹校勇 冯志华 史彦文等	125

施工技术

米仓山特长隧道竖井施工技术	韩瑀莹 冷希乔 严金秀等	133
四孔小间距重叠暗挖隧道施工顺序研究	王猛 石梦晓 许满吉等	139
永莲隧道大型承压含水水体探查及处治方法研究	王德明 吴月月 孙华东等	147
银西高铁软塑黄土隧道地表降水试验研究	张晓宇	154
某高地应力软岩隧道施工方案及多层支护结构变形分析	李沿宗 赵爽	161
目前高铁隧道施工存在的问题及改进措施——以京沈铁路北台子隧道工程为例	孔庆祥 翟人锋	166
砂卵石复合地层盾构隧道施工预加固技术	侯策源 陈添 薛宏平	172

材料与设备

广州地铁流花路站超大断面暗挖工法优化	尚友磊 谭准	177
刚性袖阀管束注浆新技术的研究与应用	孙国庆 彭峰 邹明波	186
福州地铁过江通道泥水盾构弃浆在壁后注浆材料中的再利用	杨钊 贺祖浩 刘毅等	192
隧道二次衬砌施工缝钢木组合端头模板研制及应用	万利 周磊生 孙昌海	200
一种新型防水板铺挂台车在北台子隧道中的应用	袁荣涛 翟人锋 陈海涛	206

简讯

国内首台高压水力耦合破岩TBM在郑州发布(87);成贵高铁云贵段预计2019年8月底实现轨通(117);历时10年长62 km的墨西哥TEO污水隧道顺利竣工(146);川藏铁路科技攻关联合行动领导小组第一次会议在京召开(153)

Contents

Review of Researches on Mechanical Behaviors of Tunnel Fiber Reinforced Concrete Lining	<i>CUI Guangyao SUN Lingyun ZUO Kuixian et al.</i>	1
On Failure Mechanism of Surrounding Rocks of the Deep-buried Underground Cavern Group under High Geostress and Its Countermeasures	<i>SUN Huixiang</i>	8
Research on Interpretation Method of TRT Test Results Based on GOCAD	<i>YUAN Xianfan LIAO Dan</i>	18
Characteristics Analysis and Forecast Evaluation of Gas Occurrence of the Longquanshan Tunnel on Chengdu Metro	<i>ZHANG Xiaolin CAI Jianhua LIAO Yankai</i>	25
On Digital Identification of Water Leakage at Tunnel Lining Based on the Panoramic Developed Image	<i>PENG Bin ZHU Zhiheng YANG Junsheng et al.</i>	31
Study on the Planning Technology for Metro Built by Double Shield TBM in Old Urban Area	<i>HUANG Yinding</i>	38
On Application and Promotion of BIM Technique in Urban Rail Transit Engineering	<i>ZHANG Jinwei LIU Zhiguang LU Qingquan et al.</i>	45
Economical and Ecological Evaluation Index System of the Urban Utility Tunnel Based on PSO-BP Neural Network	<i>XUE Gang ZHANG Xia</i>	53
Conception of IOT Technology Based Information System for Subway Patrol	<i>WEN Xiaokai SUN Kun LIU Liang</i>	59
Effects of a Tunnel on Ground Motion Amplification	<i>SUN Qiangqiang BO Jingshan LIU Hongshuai et al.</i>	65
Seismic Response of the Metro Station with Pre-constructed Pipe-roof Integrating Support and Structure under Strong Earthquake Effect	<i>LI Jidong YOU Xinhua</i>	72
Study on Mechanical Characteristics and Section Design of Trench Type Open-cut Tunnel Lining Structure with Deep Covering Soil under Load Reduction	<i>ZHUO Bin LI Sheng HE Chuan et al.</i>	79
Research on Pitch and Thrust Allocation of Shield Used in Inclined Shaft	<i>CHEN Ming GUAN Huisheng XIE Youhui</i>	88
Monitoring and Analysis of Pipe Jacking Force in the Shenyang Urban Stratum	<i>WANG Xueliang JI Xinbo XIA Mengran et al.</i>	95
Optimization of Loosing Circle Support of Stopping Roadway with Large Inclination	<i>ZENG Lai LIU Yong YANG Hongyun et al.</i>	102
On Deformation Control for the Shield Passing through Old Embankment to Be Rebuilt in Soft Soil Area	<i>JI Chang WANG Li</i>	108
Influence of Perforation in Steel Arch on Structural Stiffness	<i>WANG Yue SHI Jiyao</i>	118
Field Test and Analysis of Mechanical Behaviors of the Self-drilling Hollow Grouting Anchor Bolt for the Tunnel in Sandy Pebble Stratum	<i>CAO Xiaoyong FENG Zhihua SHI Yanwen et al.</i>	125
Construction Technology for the Shaft of Extra-long Micangshan Tunnel	<i>HAN Yuxuan LENG Xiqiao YAN Jinxiu et al.</i>	133
Study on Construction Sequence of Four Overlapped Bored Tunnels with Small-spacing	<i>WANG Meng SHI Mengxiao XU Manji et al.</i>	139
Exploration of Large Confined Aquifer of the Yonglian Tunnel and Relevant Treatment Measures	<i>WANG Deming WU Yueyue SUN Huadong et al.</i>	147
Experimental Study on Ground Dewatering of the Soft Plastic Loess Tunnel on the Yinchuan-Xi'an Railway	<i>ZHANG Xiaoyu</i>	154
Analysis on Construction Schemes and Deformation of Multi-layer Support Structure for a Soft Rock Tunnel under High Geostress	<i>LI Yanzong ZHAO Shuang</i>	161
Some Issues Concerning Construction of High Speed Railway Tunnels and Corresponding Countermeasures: A Case Study of Beitazi Tunnel on the Beijing-Shengyang Railway	<i>KONG Qingxiang ZHAI Renfeng</i>	166
Pre-reinforcement Technology of Shield Tunnelling in Compound Stratum with Sand and Gravel	<i>HOU Ceyuan CHEN Tian XUE Hongping</i>	172
Optimization of Mined Construction Method for the Super-large Section Liuhualu Station of Guangzhou Metro	<i>SHANG Youlei TAN Zhun</i>	177
Research and Application of New Grouting Technology with Rigid Sleeve Valve Pipe Strand	<i>SUN Guoqing PENG Feng ZOU Mingbo</i>	186
Recycle Application of the Shield Waste Slurry in Backfill Grouting Material: A Case Study of a Slurry Shield Tunnelling in the River-crossing Fuzhou Metro	<i>YANG Zhao HE Zuhao LIU Yi et al.</i>	192
Development and Application of the Steel-Wood Combined End Formwork for Construction Joints of Tunnel Secondary Lining	<i>WAN Li ZHOU Leisheng SUN Changhai</i>	200
Application of Innovative Waterproof Board Laying Trolley in the Beitazi Tunnel	<i>YUAN Rongtao ZHAI Renfeng CHEN Haitao</i>	206