

目次

· 隧道智能建造技术及装备专栏 ·

钻爆法隧道智能建造研究现状与发展趋势..... 李利平, 邹浩, 刘洪亮, 屠文锋, 陈雨雪(1)

基于钻进参数的隧道掌子面围岩单轴抗压强度和弹性模量解析..... 王明年, 易文豪, 赵思光, 夏覃永(22)

隧道掌子面节理卷积神经网络智能识别方法  
..... 张运波, 雷明锋, 肖勇卓, 刘光辉, 邓兴兴, 杨富宇, 鲁宝金, 李重阳(35)

基于三维激光点云的隧道掌子面挤出位移场高精度监测方法 ..... 程云建, 王辉, 仇文革(46)

公路隧道装配式仰拱接头变形破坏规律 ..... 王迎超, 徐杭, 雷雅婷, 周鑫, 郝英(58)

钻爆法隧道机械化施工二衬支护时机优化方法  
..... 陈子全, 孙振宇, 周子寒, 李天胜, 汪波, 徐国文, 蒋长伟(70)

基于DNN和属性数学的岩溶隧道突涌水风险预测..... 吴志军, 戴骞, 储昭飞, 刘泉声, 陈结, 尤伟军(82)

· 路基工程 ·

微生物诱导固结疏浚底泥填料路用力学性能 ..... 方明镜, 林芝阳, 党云, 刘政伟, 易毅, 姚永胜(100)

考虑雨水感热作用的降雨对多年冻土路基水热影响模型试验 ..... 张明礼, 雷兵兵, 周志雄, 周凤奎, 侯彦东(112)

· 桥梁工程 ·

张靖皋长江大桥日照作用下组合结构桥塔温度效应研究  
..... 刘宇飞, 张寒硕, 王仁贵, 魏乐永, 聂鑫, 樊健生(125)

高桩承台连续刚构桥的调谐隔震设计方法 ..... 赵灿晖, 杨正浩, 袁小聪, 肖仕周, 任小鹏, 廖文彬(137)

基于三维气弹模型的悬索桥2类吊索尾流致振及其控制措施研究  
..... 李寿英, 李啸宇, 邓羊晨, 宋神友, 陈焕勇, 陈政清(147)

考虑主缆镀锌层蠕变的索夹螺杆紧固力损失预测  
..... 周勇军, 贾利强, 杨帆, 赵煜, 穆丰睿, 张馨浩, 景薇, 丁丽鑫, 孟广林(157)

考虑纤维桥接退化的钢筋UHPC梁受弯承载能力计算方法 ..... 胡玉庆, 戚家南, 陈东, 崔冰, 王景全(168)

强震区桥梁抗震挡块强度退化模型及其应用  
..... 韦旺, 邵长江, 袁得铮, 王春阳, 李贞新, 庄卫林, OKOYA ONOUNGOUA F F(179)

· 隧道工程 ·

盾构管片开口解析分析方法及其应用  
..... 陈张鹏, 臧延伟, 杨仲轩, 徐荣桥, 龚晓南, 王金昌, 刘长宝, 严佳佳(189)

TBM滚刀与高压水射流布局对滚刀破岩效率影响的室内试验  
..... 张金良, 许弘毅, 龚秋明, 杨风威, 宋常杰(204)

· 交通工程 ·

道路交通系统数字孪生:概念、成熟度分级与研究展望 ..... 孙剑, 秦贵阳(218)

面向自动驾驶仿真测试的高覆盖切入场景库生成方法  
..... 李鹏辉, 董倩茹, 袁赫男, 胡文浩, 孙巍, 谷远利, 董春娇(237)

基于多维时空层递的交通信号分布式强化学习方法..... 王福建, 范诚睿, 周斌, 封春房, 马东方(250)

基于改进DEMO算法的高速公路分布式光伏设施布局优化 ..... 王宇, 耿庆桥, 张路凯, 孙东冶, 王登科(264)

· 汽车与机械工程 ·

智能汽车SINS/GNSS动态组合导航观测模型系统误差自适应估计方法 ..... 魏文辉, 袁伟, 张逸凡(280)

基于压力传感阵列的方向盘握持状态识别 ..... 郭栋, 李波, 石晓辉, 李明, 刘子敏, 李红玖(291)

基于逐级优化策略的特征退化场景下自动驾驶车辆自主定位方法  
..... 王章宇, 周洪武, 余贵珍, 李华志, 刘润森, 冷睿, 徐景一(303)

一种履带车辆三行星排混合动力系统构型优化设计方案..... 胡建军, 薛首志, 刘子睿(317)

CONTENTS

• Special Column on Tunnel Intelligent Construction Technology and Equipment •

Research Status and Development Trends in Intelligent Construction of Drill-and-blast Tunnels  
 ..... LI Li-ping, ZOU Hao, LIU Hong-liang, TU Wen-feng, CHEN Yu-xue(1)

Analysis of Uniaxial Compressive Strength and Elasticity Modulus of Tunnel Face Surrounding Rock Based on Drilling Parameters  
 ..... WANG Ming-nian, YI Wen-hao, ZHAO Si-guang, XIA Qin-yong(22)

Intelligent Recognition Method of Tunnel Face Joints and Fissures Using Convolutional Neural Network  
 ..... ZHANG Yun-bo, LEI Ming-feng, XIAO Yong-zhuo, LIU Guang-hui, DENG Xing-xing, YANG Fu-yu, LU Bao-jin, LI Chong-yang(35)

High-precision Monitoring Method for Extrusion Displacement Field of Tunnel Face Based on 3D Laser Point Cloud ..... CHENG Yun-jian, WANG Hui, QIU Wen-ge(46)

Deformation and Failure Law of Prefabricated Inverted Arch Joints in Highway Tunnels ... WANG Ying-chao, XU Hang, LEI Ya-ting, ZHOU Xin, HAO Ying(58)

Optimization Method for Installation Timing of Secondary Lining in Mechanized Tunnel Construction Using Drilling and Blasting Method  
 ..... CHEN Zi-quan, SUN Zhen-yu, ZHOU Zi-han, LI Tian-sheng, WANG Bo, XU Guo-wen, JIANG Chang-wei(70)

Risk Prediction of Water Inrush in Karst Tunnels Based on DNN and Attribute Mathematics  
 ..... WU Zhi-jun, DAI Qian, CHU Zhao-fei, LIU Quan-sheng, CHEN Jie, YOU Wei-jun(82)

• Subgrade Engineering •

Mechanical Properties of Microbial-induced Calcite Precipitation-improved Dredged Sediment as Road Subgrade Filling Material  
 ..... FANG Ming-jing, LIN Zhi-yang, DANG Yun, LIU Zheng-wei, YI Yi, YAO Yong-sheng(100)

Model Test Research on Influence of Rainfall Considering Rainwater Sensible Heat on Hydrothermal State of Permafrost Subgrade  
 ..... ZHANG Ming-li, LEI Bing-bing, ZHOU Zhi-xiong, ZHOU Feng-xi, HOU Yan-dong(112)

• Bridge Engineering •

Research on Temperature Effect of Composite Bridge Tower in Zhang-Jing-Gao Yangtze River Bridge Under Solar Radiation  
 ..... LIU Yu-fei, ZHANG Han-shuo, WANG Ren-gui, WEI Le-yong, NIE Xin, FAN Jian-sheng(125)

Tuned Seismic Isolation Design Method for Continuous Rigid Frame Bridge with Elevated Pile Cap Foundation  
 ..... ZHAO Can-hui, YANG Zheng-hao, YUAN Xiao-cong, XIAO Shi-zhou, REN Xiao-peng, LIAO Wen-bin(137)

Wake-induced Vibration of Two Types of Hangers of Suspension Bridge Based on Three Dimensional Aeroelastic Test Model and Its Mitigation  
 ..... LI Shou-ying, LI Xiao-yu, DENG Yang-chen, SONG Shen-you, CHEN Huan-yong, CHEN Zheng-qing(147)

Research on Preload Loss Prediction of Clamp Bolt Considering Cable Creep of Galvanized Layer  
 ..... ZHOU Yong-jun, JIA Li-qiang, YANG Fan, ZHAO Yu, MU Feng-rui, ZHANG Xin-hao, JING Wei, DING Li-xin, MENG Guang-lin(157)

Calculation Method of Flexural Bearing Capacity of UHPC Beams Based on Fiber Bridging Degradation Considerations  
 ..... HU Yu-qing, QI Jia-nan, CHEN Dong, CUI Bing, WANG Jing-quan(168)

Strength Degradation Model for Seismic Retaining Blocks on Bridges in High-intensity Earthquake Regions  
 ..... WEI Wang, SHAO Chang-jiang, YUAN De-zheng, WANG Chun-yang, LI Zhen-xin, ZHUANG Wei-lin, OKOYA ONOUNGOUA F F(179)

• Tunnel Engineering •

Analytical Solution of Tunnel Linings Subjected to Opening Condition and Its Application  
 ..... CHEN Zhang-peng, ZANG Yan-wei, YANG Zhong-xuan, XU Rong-qiao, GONG Xiao-nan, WANG Jin-chang, LIU Chang-bao, YAN Jia-jia(189)

Experimental Study on Effect of Layouts of TBM Cutter and High-pressure Water Jet on Cutting Efficiency  
 ..... ZHANG Jin-liang, XU Hong-yi, GONG Qiu-ming, YANG Feng-wei, SONG Chang-jie(204)

• Traffic Engineering •

Digital Twins for Traffic Systems: Concept, Levels of Technical Maturity, and Research Directions ..... SUN Jian, QIN Guo-yang(218)

High-coverage Cut-in Scenario Library Generation for Automated Driving Simulation Testing  
 ..... LI Peng-hui, DONG Qian-ru, YUAN He-nan, HU Wen-hao, SUN Wei, GU Yuan-li, DONG Chun-jiao(237)

Traffic Signal Decentralized Reinforcement Learning Method Based on a Multi-perspective Spatio-temporal Hierarchical Structure  
 ..... WANG Fu-jian, FAN Cheng-rui, ZHOU Bin, FENG Chun-fang, MA Dong-fang(250)

Layout Optimization of Distributed Photovoltaic Facilities on Expressway Based on Improved Differential Evolution for Multi-objective Optimization Algorithm  
 ..... WANG Yu, GENG Qing-qiao, ZHANG Lu-kai, SUN Dong-ye, WANG Deng-ke(264)

• Automotive and Mechanical Engineering •

Adaptive Estimation Method of Observational Model Systematic Errors for Intelligent Vehicle SINS/GNSS Dynamic Integrated Navigation  
 ..... WEI Wen-hui, YUAN Wei, ZHANG Yi-fan(280)

Steering Wheel Grip State Recognition Based on Pressure Sensing Array ..... GUO Dong, LI Bo, SHI Xiao-hui, LI Ming, LIU Zi-min, LI Hong-jiu(291)

Autonomous Localization Method for Autonomous Driving Vehicles in Feature Degradation Scenarios Based on Hierarchical Optimization Strategy  
 ..... WANG Zhang-yu, ZHOU Hong-wu, YU Gui-zhen, LI Hua-zhi, LIU Run-sen, LENG Rui, XU Jing-yi(303)

Optimization Design for a Hybrid Electric Powertrain System with Three-planetary Gear Sets of Tracked Vehicles  
 ..... HU Jian-jun, XUE Shou-zhi, LIU Zi-rui(317)