

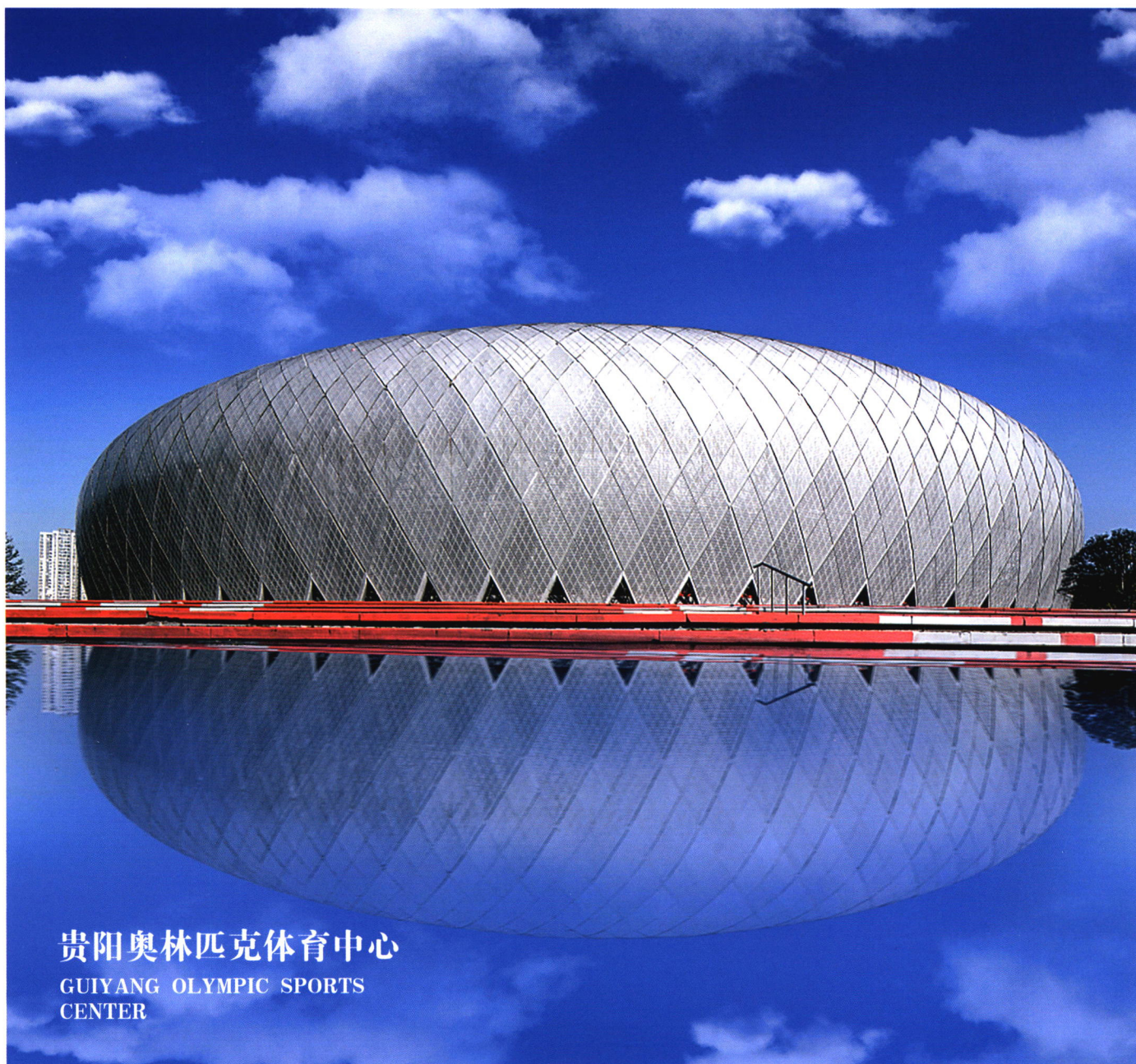
◆ CNKI 中国期刊全文数据库收录期刊 ◆ 中国核心期刊(遴选)数据库收录期刊
◆ 中文科技期刊数据库收录期刊 ◆ 万方数据——数字化期刊群收录期刊



QK2256901 | 2096-2789
44-1727/N

工程技术研究

Engineering and Technological Research



贵阳奥林匹克体育中心

GUIYANG OLYMPIC SPORTS
CENTER

ISSN 2096-2789



9 772096 278236

主管单位 广东省冶金工业总公司
主办单位 广州市金属学会
广东工程职业技术学院

2023
总第 132 期



万方数据

工程技术研究

ENGINEERING AND TECHNOLOGICAL RESEARCH

2016 年创刊（半月刊）

第 04 期 总第 132 期

第 8 卷 2023 年 2 月 25 日

国内外公开发行

主管单位 广东省冶金工业总公司

主办单位 广州市金属学会

广东工程职业技术学院

《工程技术研究》编委会

期刊顾问 毛新平

主任 李烈军

副主任 李绍康 张海

委员 邓孙成 刘宇红 李智彪 邱显扬

(按姓氏笔画排序) 张增兴 陈昌 陈小祝 陈学文

林广明 郑开宏 顾林娜 黄志勇

黄楚华

主编 刘安华

副主编 陈学文

执行副主编 谢友义

编辑 张晶 雷丹 宁雪 张彦然

电话 020-28163491

编辑发行 《工程技术研究》编辑部

地址 广州市天河区凤凰街渔兴路 18 号

投稿邮箱 gczztg@163.com gczztg@126.com

网址 https://yjco.cbpt.cnki.net

邮政编码 510520

定价 人民币 25 元

印刷单位 广州市永祥印务有限公司

ISSN 2096-2789

CN 44-1727/N

广告经营许可证 440100100002

著作权使用声明

本刊已许可中国知网以数字化方式复制、汇编、发行、传播本刊全文。本刊支付的稿酬已包含中国知网著作权使用费，所有署名作者向本刊提交文章发表之行为视为同意上述声明。如有异议，请在投稿时说明，本刊将按作者说明处理。

目次

工程前沿

金属注射成形制备高氮无镍奥氏体不锈钢的烧结优化*

刘瑞洋, 邹黎明, 王力彪, 等 1

分离式热管蒸发端仿蜂巢微通道数值模拟分析

段宁康, 黄坤荣*, 向立平, 等 5

基于 ABAQUS 的水下黏性土边坡稳定性分析*

何利超, 王振 8

混凝土简支箱梁桥墩横向刚度分析*

姜晓勇 12

BIM 模型信息分类编码分析*

秦艳萍, 林冠宏* 15

智能建造背景下装配式混凝土建筑 PC 构件编码研究*

赵学问, 肖成安 18

郑洛高速终点互通采空区治理方案研究*

万战胜, 董清志, 边俊鹏, 等 21

矮塔斜拉桥设计参数对其受力及变形的影响规律研究

——以南盘江特大桥为例 姜广伦, 钟强铭*, 姜玉杰, 等 24

大跨度连续梁预应力束优化方法研究	郭力源 30
高速铁路大型滑坡综合治理方案研究	杨振伟 33
桐梓县狮溪镇机股沟崩塌稳定性评价及落石运动轨迹分析	范希飞, 赵叶江, 杨丽君 37
马家堡互通式立交改扩建方案拟定及方案比选	宋亚平 40
盾构近距离下穿既有车站影响分析及保护措施	李睿哲 43

工程技术与应用

非煤系隧道瓦斯超前探测与监测技术研究 ——以黄家梁隧道工程为例	杨锡斌 46
地铁工程地下车站防水施工技术分析	毕永涛 50
土石方填筑施工工艺在公路路基工程中的应用 ——以拉姆至加里萨道路建设工程为例	廖润 53
燃气轮机基础清水混凝土施工工艺	魏宇航 56
基于红外热成像技术的建筑围护结构热工缺陷检测方法	潘晓花 60
建筑地下结构渗漏原因与控制措施探讨 ——以西安高新创汇社区B区建安工程A标段项目为例	王本科 63
地下连续墙渗漏声呐检测技术应用 ——以深圳市滨海大道综合改造工程为例	张双, 沈道旭 66
连续梁挂篮施工工艺研究 ——以从化至连州高速公路大桥为例	瞿徽东 69
复杂地质环境下高速公路隧道施工技术分析	湛蛟, 罗杰涛 72

隧道浅埋段地表高压旋喷桩加固施工技术分析	李满强 75
顶管法施工技术在长距离联络通道中的应用研究	邵阳, 程鹏, 付增, 等 78
地铁盾构区间施工沉降处理技术	王娇 82
盾构上跨既有有线近距离施工控制措施研究	万宝林 85
高承压水粉细砂层中隧道联络通道冷冻法施工工艺应用研究	张贺, 于静涛 89
数控加工技术在航天制造业中的应用分析	周贺, 陈智, 张海懋, 等 92

城市微型管廊预制生产工艺研究	孙宏卫 95
----------------	--------

工程设备与材料

相同应用条件下反回旋钻机与旋挖钻机成孔工艺效果比较	郑波涛 98
冷凝燃气锅炉设计及应用研究	尹逊昊 102
预制矩形桩结合旋喷锚索在软土基坑中的应用	孙洪岩 105
盾构掘进遇既有桥桩截桩桥梁防护应用研究	张昆 108
沥青路面材料特性及施工技术研究	肖川 111

工程管理

建筑工程全过程造价管理的问题及其模式创新策略分析	蔡常青, 王强, 李校华 114
市政工程造价成本控制与管理	匡训 117
电力工程设计阶段的造价控制与管理	邓文正 120
全过程工程咨询背景下的建筑工程监理工作策略	何晶玉 123

基于扎根理论的装配式建筑全过程质量管理影响因素识别研究	陈 涛	126
高端酒店装修质量管理与成本控制措施研究	张宝军	130
强透水性地层基坑开挖安全管理研究	杨树利	133
建筑深基坑土方开挖施工安全控制	吴 广	136
高速公路安全管理现状及应对策略	陈国亮	139
湖南省高速公路项目建设前期工作管理与实践分析	喻 奕, 秦 雯	142
斜拉桥混凝土索塔施工外观质量通病控制措施	张治伟	145
铁路桥梁管桩施工质量验收与管理研究	樊夏敏	149
公共基础建设中塔群安全作业措施研究	李 欢, 戚双星*, 周 为, 等	152

工程教育

混合教学模式下的高职公共英语分层教学实践研究	豆玲玲	155
------------------------	-----	-----

工程设计

基于 ABAQUS 的高支模梁板支撑系统优化设计	张金山, 赵慧勇, 何 斌*	158
空间受限条件下的互通设计研究		
——以南京机场高速九龙湖互通工程为例	周明刚	161
公路边坡锚杆设计优化与应用分析	欧苏北, 丁海军, 蒋军军, 等	165
物流园区规划设计研究		
——以合肥派河国际综合物流园为例	朱 震	168

BIM 技术在建筑结构设计中的应用分析	崔天龙	171
高原铁路生产生活房屋建筑设计	郭峻嘉	174
地铁车站建筑防火及安全疏散设计要点分析	高 荷	177
(53+84+38+40+30) m 预应力混凝土刚构-连续梁总体设计	张 茜	180
水力模型在城区排水管网系统改造中的应用	苏凯锋	183
多种类废液(水)处理工艺设计案例分析	陈志明	187
基于 AutoCAD 的上海市地形图管理系统设计	王龙浩	190

发展与创新

国内工程咨询服务现状及质量优化建议*	冯德钰, 翁新华, 杨辉辉, 等	193
房建工程施工管理现状及对策研究	泉 翔	196
深基坑岩土工程勘察技术应用要点及策略	赵小东	199
材料检测技术在公路工程中的应用	周红午	202
农村公路混凝土油石比与加筋改良影响下的拉弯试验研究	李 波	205
地铁隧道下穿既有车站方案研究	刘欣玮, 杨 涛	208
悬臂桥梁施工工艺流程分析	喻 勇	211
水利工程灌浆施工次序及方法分析	黄高翔, 胡 米, 贺玉飞	214
某大型水库溢洪闸地基与基础抗剪试验研究	魏 军	217
码头工程水下炸礁爆破施工方案优化设计	曹宏桥	220
新时期农村饮用水安全长效管理措施研究	李召旭	223
水环境综合整治类 PPP 项目中的文旅景观规划研究		
——以南宁市心圩江环境综合整治工程 PPP 项目为例	汤 玮	226

Contents

Engineering Frontier

- Sintering Optimization of High-nitrogen and Nickel-free Austenitic Stainless Steel Prepared by Metal Injection Molding*
LIU Ruiyang, ZOU Liming, WANG Libiao, et al 1
- Numerical Simulation Analysis of Honeycomb-like Microchannel at Evaporation End of the Separate Type Heat Pipe
DUAN Ningkang, HUANG Kunrong*, XIANG Liping, et al 5
- Stability Analysis of Underwater Cohesive Soil Slope Based on ABAQUS*
HE Lichao, WANG Zhen 8
- Analysis on Lateral Rigidity of Concrete Simply-supported Box Girder Bridge Pier*
JIANG Xiaoyong 12
- Analysis on BIM Model Information Classification and Coding*
QIN Yanping, LIN Guan hong* 15
- Research on PC Component Coding of Prefabricated Concrete Buildings under the Background of Intelligent Construction*
ZHAO Xuewen, XIAO Cheng'an 18
- Research on the Treatment Scheme of Goaf in Zhengzhou-Luoyang Expressway Terminal Interchange*
WAN Zhansheng, DONG Qingzhi, BIAN Junpeng, et al 21
- Research on the Influence Law of Design Parameters of Extradosed Cable-stayed Bridge on Its Stress and Deformation
—Taking Nanpan River Grand Bridge as an Example
JIANG Guanglun, ZHONG Qiangming*, JIANG Yujie, et al 24
- Research on Optimization Method of Prestressed Tendons in the Large-span Continuous Beam
GUO Liyuan 30
- Research on Comprehensive Treatment Scheme of Large Landslide on High-speed Railway
YANG Zhenwei 33
- Collapse Stability Evaluation and Rockfall Trajectory Analysis of Jigudang in Shixi Town, Tongzi County
FAN Xifei, ZHAO Yejiang, YANG Lijun 37
- Preparation and Comparison of Majiabu Interchange Reconstruction and Expansion Schemes
SONG Yaping 40
- Influence Analysis and Protection Measures of Shield Undercrossing Existing Station in Short Distance
LI Ruizhe 43

Engineering Technology and Application

- Research on Gas Advanced Detection and Monitoring Technology in Non-coal Tunnels
—Taking Huangjialiang Tunnel Project as an Example
YANG Xibin 46
- Analysis of Waterproof Construction Technology for Underground Station in Subway Engineering
BI Yongtao 50
- The Application of Earthwork Filling Construction Technology in Highway Subgrade Engineering
—Taking the Road Construction Project from Lamu to Garissa as an Example
LIAO Run 53

Fair-faced Concrete Construction Technology for Gas Turbine Foundation	WEI Yuhang 56
Thermodynamic Disfigurement Detection Method of Building Envelope Based on Infrared Thermography	PAN Xiaohua 60
Discussion on the Leakage Causes and Control Measures of Building Underground Structure	
—Taking Construction and Installation Engineering Section A Project in Zone B of Xi'an High-tech Chuanghui Community as an Example	WANG Benke 63
The Application of Sonar Detection Technology for Underground Diaphragm Wall Seepage	
—Taking Shenzhen Binhai Avenue Comprehensive Reconstruction Project as an Example	ZHANG Shuang, SHEN Daoxu 66
Research on Continuous Beam Hanging Basket Construction Technology	
—Taking Conghua-Lianzhou Expressway Bridge as an Example	QU Huidong 69
Analysis of Expressway Tunnel Construction Technology in Complex Geological Environment	SHEN Jiao, LUO Jietao 72
Analysis on the Construction Technology of High Pressure Jet Grouting Pile Reinforcement in Shallow Buried Section of Tunnels	LI Manqiang 75
Research on the Application of Pipe Jacking Method Construction Technology in Long-distance Connecting Passage	
	SHAO Yang, CHENG Peng, FU Zeng, et al 78
Construction Settlement Treatment Technology of Subway Shield Interval	WANG Jiao 82
Research on Construction Control Measures of Shield Crossing Existing Line in Short Distance	WAN Baolin 85
Research on the Application of Freezing Method Construction Technology of Tunnel Connecting Passage in High Confined Water Silty Fine Sand Layer	
	ZHANG He, YU Jingtao 89
Analysis on the Application of Numerical Control Machining Technology in Aerospace Manufacturing Industry	
	ZHOU He, CHEN Zhi, ZHANG Haimao, et al 92
Research on Prefabrication Production Process of Urban Mini Pipe Gallery	SUN Hongwei 95

Engineering Equipment and Materials

Comparison of Hole-forming Process Effects Between Reverse Rotary Drilling Rig and Rotary Drilling Rig under the Same Application Conditions	ZHENG Botao 98
Research on the Design and Application of the Condensing Gas Boiler	YIN Xunhao 102
Application of Prefabricated Ectangular Pile Combined with Jet Grouting Anchor Cable in Soft Soil Foundation Pit	SUN Hongyan 105
Research on the Pile Cutting Bridge Protection Application When Shield Tunneling Encounters Existing Bridge Piles	ZHANG Kun 108
Research on Material Characteristics and Construction Technology of Asphalt Pavement	XIAO Chuan 111

Engineering Management

Analysis on the Problems and Mode Innovation Strategy of the Whole Process Cost Management of Construction Projects	CAI Changqing, WANG Qiang, LI Xiaohua 114
Cost Control and Management of Municipal Engineering	KUANG Xun 117
Cost Control and Management in Power Engineering Design Stage	DENG Wenzheng 120
Construction Engineering Supervision Strategy under the Background of Whole Process Engineering Consulting	HE Jingyu 123
Research on the Identification of Influencing Factors of the Whole Process Quality Management of Prefabricated Buildings Based on Grounded Theory	
	CHEN Tao 126
Research on Decoration Quality Management and Cost Control Measures of High-end Hotels	ZHANG Baojun 130
Research on Safety Management of Foundation Pit Excavation in Strong Permeable Stratum	YANG Shuli 133
Safety Control of Earthwork Excavation Construction of the Building Deep Foundation Pit	WU Guang 136

Current Situation and Countermeasures of Expressway Safety Management	CHEN Guoliang	139
Analysis on the Management and Practice of the Preliminary Work of Expressway Project Construction in Hunan Province	YU Yi, QIN Wen	142
Control Measures for Common Appearance Quality Defects in Concrete Cable Tower Construction of the Cable-stayed Bridge	ZHANG Zhiwei	145
Research on Construction Quality Acceptance and Management of Railway Bridge Pipe Piles	FAN Xiamin	149
Research on Safe Operation Measures of Tower Group in Public Infrastructure Construction	LI Huan, QI Shuangxing*, ZHOU Wei, et al	152

Engineering Education

Research on the Hierarchical Teaching Practice of Public English in Higher Vocational Colleges under the Mixed Teaching Mode	DOU Lingling	155
--	--------------	-----

Engineering Design

Optimization Design of High Formwork Beam Slab Support System Based on ABAQUS	ZHANG Jinshan, ZHAO Huiyong, HE Bin*	158
Research on the Interchange Design under the Condition of Limited Space —Taking Interchange Project Between Jiulong Lake and Nanjing Airport Expressway as an Example	ZHOU Minggang	161
Analysis on the Optimization and Application of Highway Slope Anchor Rod Design	OU Subei, DING Haijun, JIANG Junjun, et al	165
Research on the Logistics Park Planning and Design —Taking Hefei Paihe International Comprehensive Logistics Park as an Example	ZHU Zhen	168
Analysis on the Application of BIM Technology in Building Structure Design	CUI Tianlong	171
Architectural Design of Production and Living Houses of Plateau Railway	GUO Junjia	174
Analysis on Key Points of Fire Protection and Safe Evacuation Design for Subway Station Buildings	GAO He	177
Overall Design of (53 + 84 + 38 + 40 + 30) m Prestressed Concrete Rigid Frame-Continuous Beam	ZHANG Xi	180
The Application of Hydraulic Model in the Reconstruction of Urban Drainage Pipe Network System	SU Kaifeng	183
Case Analysis of Various Waste Liquid (Water) Treatment Process Design	CHEN Zhiming	187
The Design of Shanghai Topographic Map Management System Based on AutoCAD	WANG Longhao	190

Development and Innovation

Current Situation and Quality Optimization Suggestions of Domestic Engineering Consulting Services	FENG Dezeng, WENG Xinhua, YANG Huihui, et al	193
Research on the Current Situation and Countermeasures of Construction Management of Housing Construction Projects	GAO Xiang	196
Key Points and Strategies for the Application of Deep Foundation Pit Geotechnical Engineering Survey Technology	ZHAO Xiaodong	199
The Application of Material Detection Technology in Highway Engineering	ZHOU Hongwu	202
Research on Tensile and Bending Test of Rural Highway under the Influence of Concrete Oil-stone Ratio and Reinforcement Improvement	LI Bo	205
Research on the Scheme of Subway Tunnel Undercrossing the Existing Station	LIU Xinwei, YANG Tao	208
Analysis of Construction Process Flow of the Cantilever Bridge	YU Yong	211
Analysis on Grouting Construction Sequence and Method of Water Conservancy Projects	HUANG Gaoxiang, HU Mi, HE Yufei	214
Research on the Base and Foundation Shear Test of the Spillway Sluice of a Large Reservoir	WEI Jun	217
Optimization Design of Underwater Reef Blasting Construction Scheme for Wharf Engineering	CAO Hongqiao	220
Research on Long-term Management Measures of Rural Drinking Water Safety in the New Era	LI Zhaoxu	223
Research on Cultural Tourism Landscape Planning in Water Environment Comprehensive Treatment PPP Project —Taking Xinxujiang Environmental Comprehensive Treatment Engineering PPP Project in Nanning as an Example	TANG Wei	226



工程技术研究

Engineering and Technological Research

地 址：广州市天河区凤凰街渔兴路 18 号

Address: No. 18, Yuxing Road, Fenghuang Street, Tianhe District,
Guangzhou

投稿邮箱：gczztg@163.com；gczztg@126.com

E-mail: gczztg@163.com; gczztg@126.com

邮政编码：510520

Post Code: 510520

定 价：人民币 25 元

Price: RMB 25