



中国精品科技期刊  
中文核心期刊 EI 收录期刊  
中国最具国际影响力学术期刊  
中国科技期刊卓越行动计划梯队期刊

ISSN 1000-7598  
CN 42-1199/O3



# 岩土力学

Rock and Soil Mechanics

Vol.42 No.1

2021

中国科学院武汉岩土力学研究所  
Institute of Rock and Soil Mechanics  
Chinese Academy of Sciences

ISSN 1000-7598



9 771000759212

## 岩土力学卓越论坛

大型高尾矿坝灾变机制与防控方法.....杨春和, 张超, 李全明, 等 (1)

## 基础理论与实验研究

- 法向应力对接触面循环单剪力学特性的影响研究.....冯大阔, 张建民 (18)  
基于 3D-DIC 技术岩石广义应力松弛特性试验研究.....许江, 宋肖徵, 彭守建, 等 (27)  
3D 打印交叉节理试件力学破裂特性研究.....王本鑫, 金爱兵, 王树亮, 等 (39)  
花岗岩风化料弃土快速堆填过程中不排水抗剪强度评估.....詹良通, 孙倩倩, 郭晓刚, 等 (50)  
滴状流条件下非饱和交叉裂隙分流机制研究.....薛松, 杨志兵, 李东奇, 等 (59)  
适用于堆石料的分数阶下加载面模型.....李海潮, 马博, 张升 (68)  
氯氧镁水泥固化淤泥力学特性及微观机制.....王东星, 陈政光 (77)  
基于冻融次数-物理时间比拟理论的冻土长期强度预测方法.....张泽, 马巍, ROMAN Lidia, 等 (86)  
平面  $P_1$  波斜入射下海底洞室地震响应解析分析.....朱赛男, 李伟华, LEE Vincent W, 等 (93)  
石灰-红黏土互损行为与偏高岭土减损机制.....谈云志, 占少虎, 胡焱, 等 (104)  
成层软土地基预固结处理后桩基水平承载力估算方法.....黄朝煊, 袁文喜, 胡国杰 (113)  
颗粒迁移作用下宽级配土渗透性研究.....朱秦, 苏立君, 刘振宇, 等 (125)  
变荷载下层状非饱和土地基全耦合固结特性研究.....叶梓, 艾智勇 (135)  
盾构下穿非连续管线变形特性及预测方法研究.....史江伟, 范燕波, 裴伟伟, 等 (143)  
土体饱和度对移动荷载引起多层非饱和铁路地基振动的影响.....李绍毅 (151)  
宽级配砾质土快速三轴固结排水剪试验影响因素研究.....陈志波, 黄聪明, 朱俊高, 等 (160)  
侧向有限越流承压含水层中非完整井非稳定流模型及解析解.....冯庆高, 蔡兵华, 冯晓腊, 等 (168)  
考虑桩底沉渣的随钻跟管桩竖向承载特性模型试验研究.....刘春林, 唐孟雄, 胡贺松, 等 (177)  
水蒸气增湿非饱和黄土热湿迁移规律研究.....李建东, 王旭, 张延杰, 等 (186)  
重载铁路基床表层级配碎石渗透特性试验研究.....杨志浩, 岳祖润, 冯怀平, 等 (193)  
非饱和土中水平入渗方程显式求解.....李纪伟, 林法力, 韦昌富, 等 (203)

## 岩土工程研究

- 基于优化经验模态分解和聚类分析的滑坡位移智能预测研究.....张凯, 张科, 保瑞, 等 (211)  
节理分布空间变异的地下洞室稳定性概率分析.....王川, 冷先伦, 李海轮, 等 (224)  
盾构隧道平行侧穿诱发的建筑纵向沉降实测与模拟分析.....戴轩, 郭旺, 程雪松, 等 (233)  
不同面板形式加筋土挡墙结构特性现场试验研究.....牛笑笛, 杨广庆, 王贺, 等 (245)

## 数值分析

- 基于无人机摄影测量的露天矿边坡数值模拟.....金爱兵, 陈帅军, 赵安宇, 等 (255)  
基于零厚度内聚力单元的水力裂缝随机扩展方法研究.....李军, 翟文宝, 陈朝伟, 等 (265)  
基于离散元模拟的二元颗粒柱坍塌特性研究.....崔澈, 魏杰, 张贵科, 等 (280)  
非饱和冻土水汽迁移与相变过程的光滑粒子法模拟.....杨高升, 白冰, 姚晓亮, 等 (291)

## 简讯

《岩土力学》征稿简则.....(封二)

期刊基本参数: CN42-1199/O3\*1979\*m\*A4\*300\*zh\*P\* ¥60.00\*2000\*30\*2021-01

本期责任编辑: 杨为民 排版: 胡惠珍

## CONTENTS

Disaster mechanism and prevention methods of large-scale high tailings dam.....	YANG Chun-he, ZHANG Chao, LI Quan-ming, et al (1)
Effect of normal stress on cyclic simple-shear behavior of gravel-structure interface.....	FENG Da-kuo, ZHANG Jian-min (18)
Experimental study of generalized stress relaxation of rock based on 3D-DIC technology.....	XU Jiang, SONG Xiao-zheng, PENG Shou-jian, et al (27)
Mechanical characteristics and fracture mechanism of 3D printed rock samples with cross joints.....	WANG Ben-xin, JIN Ai-bing, WANG Shu-liang, et al (39)
Estimation of undrained shear strength of completely decomposed granite waste during rapid landfilling.....	ZHAN Liang-tong, SUN Qian-qian, GUO Xiao-gang, et al (50)
Splitting mechanisms of droplets through unsaturated fracture intersections.....	XUE Song, YANG Zhi-bing, LI Dong-qi, et al (59)
A fractional sub-loading surface model for rockfill.....	LI Hai-chao, MA Bo, ZHANG Sheng (68)
Mechanical properties and micro-mechanisms of magnesium oxychloride cement solidified sludge.....	WANG Dong-xing, CHEN Zheng-guang (77)
Freeze-thaw cycles-physical time analogy theory based method for predicting long-term shear strength of frozen soil.....	ZHANG Ze, MA Wei, ROMAN Lidia, et al (86)
Analytical solution of seismic response of an undersea cavity under incident P <sub>1</sub> -wave.....	ZHU Sai-nan, LI Wei-hua, LEE Vincent W, et al (93)
Behavior of lime-laterite interaction and anti-erosion mechanism of Metakaolin.....	TAN Yun-zhi, ZHAN Shao-hu, HU Yan, et al (104)
An estimation method of horizontal bearing capacity of piles after pre-consolidation treatment for layered soft foundation.....	HUANG Chao-xuan, YUAN Wen-xi, HU Guo-jie (113)
Study of seepage in wide-grading soils with particles migration.....	ZHU Qin, SU Li-jun, LIU Zhen-yu, et al (125)
Fully-coupled consolidation characteristics of layered unsaturated soils subjected to varying loadings.....	YE Zi, AI Zhi-yong (135)
An investigation of deformation mechanisms of jointed pipelines due to underneath tunnel excavation.....	SHI Jiang-wei, FAN Yan-bo, PEI Wei-wei, et al (143)
Influences of soil saturation on the vibration of multi-layer unsaturated railway ground induced by moving load.....	LI Shao-yi (151)
On influencing factors of quick consolidated-drained triaxial tests of widely-graded gravelly soils.....	CHEN Zhi-bo, HUANG Cong-ming, ZHU Jun-gao, et al (160)
Analytical solutions of transient flow model for a partially penetrating well in a finite leaky confined aquifer system.....	FENG Qing-gao, CAI Bing-hua, FENG Xiao-la, et al (168)
An experimental study of vertical bearing capacity of DPC piles considering sediment effect at pile bottom.....	LIU Chun-lin, TANG Meng-xiong, HU He-song, et al (177)
Study of thermal moisture migration of unsaturated loess with water vapor.....	LI Jian-dong, WANG Xu, ZHANG Yan-jie, et al (186)
Experimental study of permeability properties of graded macadam in heavy haul railway subgrade bed surface layer.....	YANG Zhi-hao, YUE Zu-run, FENG Huai-ping, et al (193)
Explicit solution of horizontal infiltration equation in unsaturated soils.....	LI Ji-wei, LIN Fa-li, WEI Chang-fu, et al (203)
Intelligent prediction of landslide displacements based on optimized empirical mode decomposition and K-Mean clustering.....	ZHANG Kai, ZHANG Ke, BAO Rui, et al (211)
Probabilistic stability analysis of underground caverns considering spatial variation of joint distribution.....	WANG Chuan, LENG Xian-lun, LI Hai-lun, et al (224)
Field measurement and numerical analysis for evaluating longitudinal settlement induced by shield tunneling parallel to building.....	DAI Xuan, GUO Wang, CHENG Xue-song, et al (233)
Field tests on structural properties of reinforced retaining walls with different panels.....	NIU Xiao-di, YANG Guang-qing, WANG He, et al (245)
Numerical simulation of open-pit mine slope based on unmanned aerial vehicle photogrammetry.....	JIN Ai-bing, CHEN Shuai-jun, ZHAO An-yu, et al (255)
Research on random propagation method of hydraulic fracture based on zero-thickness cohesive element.....	LI Jun, ZHAI Wen-bao, CHEN Zhao-wei, et al (265)
Research on collapse characteristics of binary particle column based on discrete element simulation.....	CUI Wei, WEI Jie, ZHANG Gui-ke, et al (280)
Smoothed particle hydrodynamics for simulation of water vapor migration and phase change in unsaturated frozen soil.....	YANG Gao-sheng, BAI Bing, YAO Xiao-liang, et al (291)

## 《岩土力学》第九届编委会和编辑部组成人员名单

主编 顾问编委 委员	孔令伟 王思敬 马巍 韦昌富 冯守中 邬爱清 李小春 李新平 张建海 陈晓平 周顺华 侯公羽 梅国雄 温彦峰 周平	白世伟 王浩 介玉新 朱长歧 年廷凯 李术才 何满潮 邹维列 张勇慧 陈善雄 郑刚 施斌 黄宏伟 蒋明镜 杨为民	陈正汉 王川婴 邓建辉 任伟中 孙德安 李邵军 李典庆 汪稳 张家发 邵生俊 郑宏 姚仰平 黄茂松 焦玉勇 郭茜	郑颖人 王水林 孔令伟 刘建 杨光华 李典庆 邹维列 张强勇 周平 郑俊杰 姚海林 曹文贵 蔡袁强 丁晓	葛修润 王立忠 尹光志 刘汉龙 杨启贵 李建林 张嘎 陈健 周伟 金衍 徐长节 盛谦 廖红建 薛强	王明年 卢应发 刘传正 杨典森 李建春 张友良 陈卫忠 周辉 孟庆山 高玉峰 梁冰 薛强	王建华 白冰 刘忠玉 杨春和 李海波 李银平 张玉军 陈仁朋 周正明 胡大伟 唐春安 章为民	王洪新 冯夏庭 刘泉声 李琦 李海波 李银平 张传庆 陈从新 周创兵 赵明华 唐辉明 韩煊
编辑部成员								

### Editorial Board of Rock and Soil Mechanics (2017 – 2021)

Editor-in-chief	Lingwei Kong							
Advisors	Sijing Wang	Shiwei Bai	Zhenghan Chen	Yingren Zheng	Xiurun Ge			
Editorial Board Members	Wei Ma	Hao Wang	Chuanying Wang	Shulin Wang	Lizhong Wang	Mingnian Wang	Jianhua Wang	Hongxin Wang
	Changfu Wei	Yuxin Jie	Jianhui Deng	Lingwei Kong	Guangzhi Yin	Yingfa Lu	Bing Bai	Xiating Feng
	Shouzhong Feng	Changqi Zhu	Weizhong Ren	Jian Liu	Hanlong Liu	Chuanzheng Liu	Zhongyu Liu	Quansheng Liu
	Aiqing Wu	Tingkai Nian	Dean Sun	Guanghua Yang	Qigui Yang	Diansen Yang	Chunhe Yang	Qi Li
	Xiaochun Li	Shucui Li	Shaojun Li	Dianqing Li	Jianlin Li	Jianchun Li	Haibo Li	Yiping Li
	Ximping Li	Manchao He	Weilie Zou	Ren Wang	Ga Zhang	Youliang Zhang	Yujun Zhang	Chuangqing Zhang
	Jianhai Zhang	Yonghui Zhang	Jiafa Zhang	Qiangyong Zhang	Jian Chen	Weizhong Chen	Renpeng Chen	Congxin Chen
	Xiaoping Chen	Shanxiang Chen	Shengjun Shao	Ping Zhou	Wei Zhou	Hui Zhou	Zhengming Zhou	Chuangbing Zhou
	Shunhua Zhou	Gang Zheng	Hong Zheng	Junjie Zheng	Yan Jin	Qingshan Meng	Dawei Hu	Minghua Zhao
	Gongyu Hou	Bin Shi	Yangping Yao	Hailin Yao	Changjie Xu	Yufeng Gao	Chunan Tang	Huiming Tang
	Guoxiong Mei	Hongwei Huang	Maosong Huang	Wengui Cao	Qian Sheng	Bing Liang	Weimin Zhang	Xuan Han
	Yanfeng Wen	Mingjing Jiang	Yuyong Jiao	Yuanqiang Cai	Hongjian Liao	Qiang Xue		
Editorial Staff	Ping Zhou	Weimin Yang	Qian Guo	Xiao Ding				

## 岩 土 力 学

Yantu Lixue

(1979 年创刊 月刊 每月 10 日出版)

2021 年 1 月 第 42 卷 第 1 期 (总 325)

## Rock and Soil Mechanics

(Monthly, Started in 1979)

Vol.42 No.1 (Total 325) Jan. 2021

主管单位	中国科学院	Competent Authority by: Chinese Academy of Sciences
主办单位	中国科学院武汉岩土力学研究所	Sponsored by: Institute of Rock and Soil Mechanics, Chinese Academy of Sciences
编辑出版	《岩土力学》编辑部	Edited and Published by: Editorial Office of Rock and Soil Mechanics
主 编	孔令伟	Editor-in-Chief: Lingwei Kong
地 址	武汉市武昌小洪山 中国科学院武汉岩土力学研究所 430071	Address: Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, Wuhan 430071, China
印 刷	武汉宏达盛印务有限公司	Printed by: Wuhan Hongdasheng Print Co., Ltd.
国内发行	湖北省邮政报刊发行局	Distributed by: Hubei Bureau for Distribution of Newspapers and Journals
国外发行	中国国际图书贸易总公司 (中国国际书店) 北京 399 信箱	Distributed Abroad by: China International Book Trading Corporation (GUOJI SHUDIAN) P. O. Box 399, Beijing, China
电 话:	(027) 87198484 87199252 (传真)	Tel.: (027)87198484 87199252 (Fax)
E-mail:	ytlx@whrsm.ac.cn	<a href="http://ytlx.whrsm.ac.cn/">http://ytlx.whrsm.ac.cn/</a> , <a href="http://ytlx.chinajournal.net.cn/">ytlx.chinajournal.net.cn/</a>