

全国中文核心期刊  
中国科技核心期刊  
中国科学引文数据库核心期刊

ISSN 1000-0844  
CN 62-1208/P  
CODEN: XDIXEF

# 地震工程学报

CHINA EARTHQUAKE ENGINEERING JOURNAL

2023 5

第45卷 第5期  
Vol. 45 No. 5  
2023年9月出版

ISSN 1000-0844



主管单位：中国地震局  
主办单位：中国地震局兰州地震研究所  
清华大学  
中国地震学会  
中国土木工程学会

# 地震工程学报

DIZHEN GONGCHENG XUEBAO

第 45 卷 第 5 期 2023 年 9 月

## 目次

### 地质灾害机理与防治新技术专栏

- 组合式刚塑带加筋土强度的理论分析与试验验证 ..... 雷胜友 (1001)
- 近距离垂直交叠地铁盾构隧道的动力响应分析 ..... 徐平, 李西峰, 张文跃 (1008)
- 震源和水听器沉放深度对单道地震勘探的影响 .....  
..... 张匡华, 韩孝辉, 钟宙灿, 全长亮, 傅人康, 王嘉琳 (1017)
- 震后山区公路地质灾害风险评估体系研究——以川九公路震后恢复重建为例 .....  
..... 蒋瑜阳, 向波, 王东, 王毅 (1026)
- 三亚崖州湾海域开发建设适宜性定量分析评价 .....  
..... 覃茂刚, 曾维特, 龙根元, 陈波, 汪贵锋, 杨朝云, 张匡华, 邓思迪 (1035)
- 甘肃定西公路建设中的工程地质问题分析 ..... 沈世科, 赵天宇, 安亮 (1046)
- 地球自转周期、极移和章动与全球强震关联分析 ..... 王备战, 孙明国, 金旺, 于欢欢 (1057)
- 基于位移的模块式加筋土挡墙抗震设计方法研究 .....  
..... 李思汉, 蔡晓光, 景立平, 蔡博渊, 刘巍巍, 马淑锦 (1066)
- 华北地块及邻区重力异常特征及地质结构 .....  
..... 郭雨帆, 肖健, 付光明, 许志山, 李清武, 黄仁桂, 赵影, 徐长文, 肖建华, 袁俊 (1075)
- 基于多源遥感数据的山西省交口县某尾矿库堆载过程回溯与失稳模式分析 .....  
..... 周胜森, 李为乐, 陆会燕, 单云锋, 郁文龙, 许善森, 张攀, 李维敏 (1085)
- 基于 InSAR 相位梯度叠加的毛尔盖库岸滑坡隐患快速识别 .....  
..... 唐光民, 戴可人, 卓冠晨, 沈月, 陈晨, 许强 (1096)
- 沟道松散堆积体冲刷启动机理与泥石流-拦挡坝相互作用研究 .....  
..... 张座雄, 刘兴荣, 王喜红, 王磊, 时岩 (1106)
- “9·5”泸定震后落井沟泥石流灾变过程预测分析 .....  
..... 李林泽, 常鸣, 李宏杰, 胡锦涛, 徐恒志, 刘沛源 (1116)
- 三峡库区卧沙溪次级滑体变形机理与阈值研究 .....  
..... 周露露, 邓茂林, 易庆林, 王国法, 梁之康, 万航 (1125)
- 三种断层位移测量工具对比分析 ..... 王辽, 谢虹, 朱俊文, 薛善余, 张正模, 张波 (1133)
- 庆阳北石窟寺濒危岩体变形特征分析 ..... 马雪雅, 张理想, 陈银桥, 张景科, 邹红宇, 谷留杨 (1145)

## 地震工程

- 固化黄土力学特性三轴试验研究 ..... 刘忠玉, 朱少培, 张家超, 宁秉正 (1156)
- 黄土高原地区场地设计反应谱特征周期研究 ..... 李孝波, 欧阳刚垒, 宋霖君, 吴义文, 徐建元 (1161)
- 一种内蕴基线漂移校正的人工地震波反应谱拟合方法 .....  
..... 张树翠, 夏宏升, 张欣刚, 姚文莉, 齐朝晖, 刘大强 (1171)
- 锈蚀箍筋约束混凝土加固柱抗震性能分析 ..... 李 强, 贺 胜, 金宇琨, 董嘉辉, 常迪文 (1179)
- 筒体-环形组合建筑结构安全措施效果研究 ..... 渠亚卿, 任文静, 邱大鹏 (1189)
- 地震作用下夯土城墙动力响应分析——以山丹明长城为例 .....  
..... 马金莲, 王 谦, 钟秀梅, 高中南, 马志强 (1197)
- 基于敲击法的碳纤维板加固钢梁脱粘检测研究 ..... 吴文彬, 李 恒 (1206)
- 铁路工程抗震设计规范中桥梁抗震相关规定与发展沿革 ..... 赵才煜, 孙柏涛, 陈洪富 (1214)
- 考虑阻尼器极限状态的耗能减震体系斜拉桥抗震性能分析 ..... 陈 晨, 刘金龙, 林均岐 (1222)
- 地震作用下高速铁路车-线-桥耦合系统动力响应分析 .....  
..... 马理超, 王相平, 王戊寅, 张 旭, 李 强, 李国芳 (1231)
- 核电厂考虑结构参数不确定的地震易损性分析 ..... 秦苗璐, 赵衍刚, 卢朝辉 (1241)

# CHINA EARTHQUAKE ENGINEERING JOURNAL

Vol. 45 No. 5 September, 2023

## CONTENTS

- Theoretical analysis and experimental verification of the strength of composite soils reinforced with rigid plastic belts ..... *LEI Shengyou* (1001)
- Dynamic response analysis of short-distance vertical overlapping subway shield tunnels ..... *XU Ping, LI Xifeng, ZHANG Wenyue* (1008)
- Effect of the sinking depth of the source and hydrophone on single-channel seismic exploration ..... *ZHANG Kuanghua, HAN Xiaohui, ZHONG Zhoucan, TONG Changliang, FU Renkang, WANG Jialin* (1017)
- Risk evaluation system for geological disasters of highways in mountainous regions after earthquakes: a case study of the postearthquake restoration and reconstruction of the Chuanzhusi—Jiuzhaigou highway ..... *JIANG Yuyang, XIANG Bo, WANG Dong, WANG Yi* (1026)
- Quantitative analysis and evaluation of the development and construction suitability in Yazhou Bay, Sanya ..... *QIN Maogang, ZENG Weite, LONG Genyuan, CHEN Bo, WANG Guifeng, YANG Chaoyun, ZHANG Kuanghua, DENG Sidi* (1035)
- Engineering geological problems of highway construction in Dingxi City, Gansu Province ..... *SHEN Shike, ZHAO Tianyu, AN Liang* (1046)
- Analyzing the association of the Earth's rotation period, polar motion, and nutation with major global earthquakes ..... *WANG Beizhan, SUN Mingguo, JIN Wang, YU Huanhuan* (1057)
- Displacement-based seismic design methods of a modular reinforced soil retaining wall ..... *LI Sihan, CAI Xiaoguang, JING Liping, CAI Boyuan, LIU Weiwei, MA Ruijin* (1066)
- Gravity anomaly characteristics and geological structure of the North China block and its surrounding areas ..... *GUO Yufan, XIAO Jian, FU Guangming, XU Zhishan, LI Qingwu, HUANG Rengui, ZHAO Ying, XU Changwen, XIAO Jianhua, YUAN Jun* (1075)
- Surcharge process retrospective and failure mode analysis of a tailings pond in Jiaokou County, Shanxi Province, based on multisource remote sensing data ..... *ZHOU Shengsen, LI Weile, LU Huiyan, SHAN Yunfeng, YU Wenlong, XU Shanmiao, ZHANG Pan, LI Weimin* (1085)
- Rapid identification of potential landslides in the Maoergai reservoir based on InSAR phase gradient stacking ..... *TANG Guangmin, DAI Keren, ZHUO Guanchen, SHEN Yue, CHEN Chen, XU Qiang* (1096)
- Scour initiation mechanism of gully loose deposits and the interaction between debris flow and dam ..... *ZHANG Zuoxiong, LIU Xingrong, WANG Xihong, WANG Lei, SHI Yan* (1106)
- Prediction of the catastrophe process of the debris flow in Luojing Gully after the "9·5" Luding earthquake ..... *LI Linze, CHANG Ming, LI Hongjie, HU Jinfeng, XU Hengzhi, LIU Peiyuan* (1116)
- Deformation mechanism and threshold of the secondary sliding body of the Woshaxi landslide in the Three Gorges Reservoir area ..... *ZHOU Lulu, DENG Maolin, YI Qinglin, WANG Guofa, LIANG Zhikang, WAN Hang* (1125)
- Comparative analysis of three types of tools to measure fault displacements ..... *WANG Liao, XIE Hong, ZHU Junwen, XUE Shanyu, ZHANG Zhengmo, ZHANG Bo* (1133)
- Deformation characteristics of dangerous rock masses in the North Grotto Temple, Qingyang City ..... *MA Xueya, ZHANG Lixiang, CHEN Yinqiao, ZHANG Jingke, ZOU Hongyu, GU Liuyang* (1145)

Triaxial tests on mechanical properties of solidified loess .....	.....
.....	..... <i>LIU Zhongyu, ZHU Shaopei, ZHANG Jiachao, NING Bingzheng</i> (1156)
Characteristic periods of the design response spectra of sites in the Loess Plateau region .....	.....
.....	..... <i>LI Xiaobo, OUYANG Ganglei, SONG Linjun, WU Yiwen, XU Jianyuan</i> (1161)
Response spectral fitting method for artificial ground motions based on embedded baseline drift correction .....	.....
.....	..... <i>ZHANG Shucui, XIA Hongsheng, ZHANG Xin'gang, YAO Wenli, QI Zhaohui, LIU Daqiang</i> (1171)
Seismic behavior of strengthened concrete columns confined by corroded stirrups .....	.....
.....	..... <i>LI Qiang, HE Sheng, JIN Yukun, DONG Jiahui, CHANG Diwen</i> (1179)
Effects of safety measures for tube-ring hybrid building structures .....	..... <i>QU Yaqing, REN Wenjing, QIU Dapeng</i> (1189)
Dynamic response analysis of rammed earth walls under earthquake: a case study of the Ming Great Wall in Shandan County .....	.....
.....	..... <i>MA Jinlian, WANG Qian, ZHONG Xiumei, GAO Zhongnan, MA Zhiqiang</i> (1197)
Debonding detection of steel beams reinforced by carbon fiber-reinforced polymer plates by the percussion method ...	.....
.....	..... <i>WU Wenbin, LI Heng</i> (1206)
Related provisions and development evolution of seismic bridge design in the codes for seismic design of railway engineering .....	.....
.....	..... <i>ZHAO Caiyu, SUN Baitao, CHEN Hongfu</i> (1214)
Seismic performance of cable-stayed bridges with an energy dissipation system considering the limit states of viscous dampers .....	.....
.....	..... <i>CHEN Chen, LIU Jinlong, LIN Junqi</i> (1222)
Dynamic response of vehicle-track-bridge coupling system of high-speed railway under seismic excitation .....	.....
.....	..... <i>MA Lichao, WANG Xiangping, WANG Wuyin, ZHANG Xu, LI Qiang, LI Guofang</i> (1231)
Seismic fragility analysis of nuclear power plants considering structural parameter uncertainties .....	.....
.....	..... <i>QIN Miaojun, ZHAO Yan'gang, LU Zhaohui</i> (1241)

《地震工程学报》被以下数据库收录：

CNKI 中国期刊全文数据库  
万方数据——数字化期刊群  
中国科技论文与引文数据库  
中文科技期刊数据库（全文版）  
CEPS 中文电子期刊服务



网上投稿系统

DIZHEN GONGCHENG XUEBAO

地震工程学报

（双月刊，1979年创刊）  
第45卷 第5期 2023年9月28日出版

主管 中国地震局  
主办 中国地震局兰州地震研究所、清华大学、中国地震学会、  
中国土木工程学会  
编辑出版 《地震工程学报》编辑部  
（甘肃省兰州市东岗西路450号，邮政编码：730000）  
主编 石玉成  
印刷装订 兰州万易印务有限责任公司  
发行单位 中国邮政集团公司甘肃省报刊发行局  
国内发行 全国各地邮局  
国外发行 中国国际图书贸易总公司（北京399信箱）  
网址 <http://dzgxcb.ijournals.cn>  
电子邮箱 [dzgxcb@gsdzj.gov.cn](mailto:dzgxcb@gsdzj.gov.cn); [2506121280@qq.com](mailto:2506121280@qq.com)

China Earthquake Engineering Journal

（Bimonthly, Started in 1979）  
Vol. 45 No. 5 Published on September 28, 2023

Superintended by: China Earthquake Administration  
Sponsored by: Lanzhou Institute of Seismology of CEA, Tsinghua University,  
Seismological Society of China, China Civil Engineering Society  
Edited by: Editorial Board of China Earthquake Engineering Journal  
(450 Donggang West Road, Lanzhou, Gansu 730000, China)  
Editor-in-Chief: SHI Yucheng  
Printed by: Lanzhou Wanyi Printing Co., Ltd.  
Distributed Domestically by: Post Offices all over China  
Distributed Abroad by: China International Book Trading Corporation  
(GUOJI SHUDIAN): P.O.Box 399, Beijing, China  
Web Site: <http://dzgxcb.ijournals.cn>  
E-mail: [dzgxcb@gsdzj.gov.cn](mailto:dzgxcb@gsdzj.gov.cn); [2506121280@qq.com](mailto:2506121280@qq.com)

联系地址：甘肃省兰州市东岗西路450号中国地震局兰州地震研究所《地震工程学报》编辑部  
邮 编：730000 电 话：（0931）8275892

国际标准连续出版物号：ISSN 1000-0844  
国内统一连续出版物号：CN 62-1208/P

国外发行代号：BM674  
国内邮发代号：54-28

国内定价：30.00元