ISSN 0371-5736

地质论评

GEOLOGICAL REVIEW

第63卷 第5期

Vol.63 No.5

2017

中国地质学会 主办
《地质论评》编辑委员会 编辑
科学出版社 出版

design of the supporting structure of deep foundation pit. The structure of the project has three layers. The bottom layer would connect river-bottom tunnel, and the upper two layers would connect nearby venues and a plurality of ground road. The foundation pit excavation is very deep, the excavation depths are very different and the shape of foundation pit is very irregular. The project is located on the west side of Nanjing Youth Olympic Center, the place that is near the Yangtze River embankment. The Quaternary loose sediments are widely distributed in this area.

Methods: This paper aims at the core area of the super large foundation pit engineering, analyzes its engineering geological conditions and raises the possible engineering geological problems. According to the function and shape of the foundation pit, the soil layer of the foundation pit is partitioned and layered from the plane and section and the supporting structure design has been optimized. The scheme of foundation pits supporting was a combination method of open cut excavation in the upper part and the diaphragm wall in the lower part. The successful completing and deformation monitoring of foundation pit has illustrated the rationality of the design scheme.

Results: It solves the problem of large irregular foundation pit construction technology, improves the construction speed and reduces the construction cost.

Conclusions: This result can be applied for the design of support scheme and deformation control of some super large foundation pit engineering in the area of the Yangtze River.

Acknowledgements: This paper is the doctoral program of the Ministry of Education and the result of the social development support project of Jiangsu Science and Technology Departmen. Thank you for their help and support. Thanks are due to tutor YAN Changhong for assistance with on-the-spot investigation and valuable discussion.

Keywords: deep and large special-shaped foundation pit group; supporting design; slope technology; diaphragm wall; bored pile

First author: GUO Shulan, female, born in 1992, Graduate students, mainly engaged in geotechnical engineering research. Email: guoshulan1221@163.com

Corresponding author: YAN Changhong, male, born in 1959, professor and doctoral supervisor of Nanjing University, engaged in engineering geology, environmental geotechnical engineering teaching and research. Email: yanchh@nju.edu.cn

Manuscript received on:2016-08-15;Accepted on:2017-07-24; Edited by: ZHANG Yuxu

Doi: 10.16509/j.georeview.2017.05.020

GEOLOGICAL REVIEW

Vol. 63　No. 5　2017

CONTENTS

Scholarly Discussion

From Geosyncline—Platform Theory, Plate Tectonics to the Multisphere Tectonic View of Earth System ..... REN Jishun, XU Qinqin, ZHAO Lei, ZHU Junbin(1139)

Study on Thermal Deformation and Lower Crust Channel Flows in Qinghai—Xizqng (Tibet) Plateau ..... YANG Wencai, HOU Zunze, XU Yixian, YAN Ping(1151)

Geochemistry and Its Tectonic Significance of the Clastic Rock in the Neoproterozoic Xiajiang Group, Southeast Guizhou, South China ..... DAI Wei,XU Yajun, DU Yuansheng, QIN Yongjun(1167)

New Petrographic and Mineralogical Analyses of the Wangpo Shale, Wujiaping Formation (Basal Lopingian, Permian) in the Liangshan Area of Shaanxi ..... GUO Junfeng, SONG Zuchen, XIAO Liang, LI Xiangchuan, ZHENG Yajuan, YAO Xiaoyong, ZHOU Xuerou(1179)

Deformation Characteristics of the Neoproterozoic Langshan Group in Langshan Region and Their Tectonic Implications ..... TIAN Rongsong, XIE Guoai, ZHANG Jin, QU Junfeng, ARKIN Amirdin, LI Fahao, ZHANG Beihang, ZHAO Heng(1191)

Geochemical Characteristics and Geological Significance of the Neoproterozoic K-feldspar Granites from the Anshunchang, Shimian Area, Western Yangtze Block ..... ZHU Yu, LAI Shaocong, ZHAO Shaowei, ZHANG Zezhong, QIN Jiangfeng (1208)

Geochemical Characteristics, Zircon U-Pb Ages of the Late Carboniferous Granite in Baiyintuga Area, Abaga Banner, Inner Mongolia and Their Geological Significance ..... YANG Duo, CHEN Man, GONG Quande, CHEN Tianhong, HUANG Fei, WU Hao, LI Haolu (1225)

Determination and Geological Significance of Late Carboniferous Magma Mixing Granitoids in the West Tianshan Mountains ——Evidence from Zircon LA-ICP-MS U-Pb Ages and Petro-geochemical Characteristics of Yuqibulake and Wutujinghe Plutons ..... YANG Rong, ZHANG Chengli, CHEN Chunyong, ZHANG Xiaoqi, GOU Longlong, MA Zhongping, GAO Xiaofeng, WEI Qiang, SUN Jiming, LI Ping (1254)

Study on Metallogenic Environments and Prospective Direction of Sandstone Type Uranium Deposits in Junggar Basin ..... QIN Mingkuan, HE Zhongbo, LIU Zhangyue, GUO Qiang, SONG Jiye, XU Qiang (1269)

Restoration of Karst Palaeotopography on the Tongwan Movement Period in the Southeastern Sichuan and Northwestern Guizhou ..... FENG Weiming, XIE Yuan, LI Rong, LUO Jianning, LIN Jiashan, LIU Jianqing, ZHAO Zhan (1280)

The Characteristic and Formation Mechanism of Granitic Rock Eggs in the Meiling Mountain, Nanchang ..... LI Zhiwen, GUO Fusheng, SUN Li, HUANG Baohua (1294)

Study on the Accumulation Conditions of Shale Gas in Doushantuo Formation in Western Hubei ..... PENG Bo, LIU Yuchen, QI Fucheng, DONG Yan, WANG Zhenyun (1305)

Research Progress

Zircon U-Pb Ages and Hf Isotope Characterestics and Their Geological Significance of Tuff in Wulalike Formation in the Northwestern Ordos Basin ..... WU Sujuan, ZHANG Yongsheng, XING Enyuan (1327)

SHRIMP U-Pb Dating of Erdaowa Rock Group Biotite Hornblende Schist in the North Hohhot, Inner Mongolia ..... ZHANG Yuqing, ZHANG Ting, BAOYIN Wuliji, YIN Hai, ZENG Qingrong (1335)

LA-ICP-MS Zircon U-Pb Ages, Geochemical Characteristics of Late Triassic Intermediate—Acid Intrusive Rocks in Qitaidaban Area, Western Kunlun and Their Tectonic Significance ..... ZHAO Jianglin, HE Ningqiang, DU Biao, ZENG Zhongcheng, YUAN Zhang (1360)

Typomorphic Characteristics of Pyrite, Arsenopyrite and Occurrence of Gold in the Giant Nibao Gold Deposit, Pu'an, Southwestern Guizhou ..... ZHENG Lulin, YANG Ruidong, CHEN Jun, GAO Junbo, ZHANG Xu, WEI Huairui (1377)

Zircon U-Pb Ages and Its Significance of the Syenite Porphyry in Bayinsuhetu Tungsten Deposit, Mongolia ..... GUO Zhihua, ZHANG Baolin, DANG Yongqi, GUO Bowei, GAO Lei, HOU Jinliang, ZHANG Lichun (1389)

The Eh—pH Thermodynamic Phase Diagram Reflecting the Intergrowth and Differentiation of Mineral Groups in Maozu Hydrothermal Type Deposits of Northeastern Yunan ..... ZHANG Rongwei, PENG Jiantang, DENG Qidong, HE Shenghui, XUE Lipeng (1399)

The Controlling Factors of Coalbed Reservoir Permeability and CBM Development Strategy in China ..... KANG Yongshang, SUN Liangzhong, ZHANG Bing, GU Jiaoyang, YE Jianping, JIANG Shanyu, WANG Jin, MAO Delei (1418)

Geological Conditions Study Playing Significant Role in the Supporting Design of Super Large Foundation Pit ——Optimization of the Supporting Design for a Super Large and Special Shaped Foundation Pit in Complicated Geological and Environmental Conditions ..... GUO Shulan, YAN Changhong, YANG Zhanyong, WANG Qingming, ZHANG Lifeng, WANG Shi, CHE Canhui, SHI Qingtao (1426)

Correspondence · Reference · News Report

Strengthening the Construction of Science Popularization Ability, to Promote Scientific and Technological popularization: Base Construction Achievements and Recent Planning for Groundwater Science and Engineering Science of the Ministry of Land and Resources ..... ZHANG Yazhe, CUI Haohao, FENG Xin (1306)

The 16th "Science and Technology Prize to Young Geological Workers of *Geological Society of China*" Issued ..... (1140, 1336)

(Excutive editors of this issue: ZHANG Yuxu, LIU Zhiqiang; typesetting and figures editor: LIU Meng)

地 质 论 评

2017 年 第 63 卷 第 5 期

目 次

学 术 讨 论

从地槽—地台说、板块构造说到地球系统多圈层构造观 …… 任纪舜，徐芹芹，赵磊，朱俊宾(1133)
青藏高原下地壳热变形和管道流研究 …… 杨文采，侯遵泽，徐义贤，颜萍(1141)
黔东南新元古代下江群碎屑岩地球化学特征及其大地构造意义 …… 戴维，徐亚军，杜远生，覃永军(1153)
陕西汉中梁山二叠系乐平统底部吴家坪组王坡页岩新认识 …… 郭俊锋，宋祖晨，肖良，李相传，郑亚娟，姚肖永，周雪柔(1169)
内蒙古狼山地区新元古代狼山群变形特征及区域构造意义 …… 田荣松，解国爱，张进，曲军峰，艾米尔丁·艾尔肯，李法浩，张北航，赵衡(1180)
扬子板块西缘石棉安顺场新元古代钾长花岗岩地球化学特征及其地质意义 …… 朱毓，赖绍聪，赵少伟，张泽中，秦江锋(1193)
内蒙古阿巴嘎旗白音图嘎地区晚石炭世花岗岩地球化学特征、锆石 U-Pb 定年及其地质意义 …… 杨多，陈满，龚全德，陈天红，黄菲，吴昊，李昊璐(1209)
西天山晚石炭世岩浆混合花岗岩的确定及其地质意义——来自玉奇布拉克和乌图精河岩体的 LA-ICP-MS 锆石 U-Pb 年龄和岩石地球化学证据 …… 杨蓉，张成立，陈春勇，张晓琪，苟龙龙，马中平，高晓峰，魏强，孙吉明，李平(1226)
准噶尔盆地砂岩型铀矿成矿环境与找矿方向研究 …… 秦明宽，何中波，刘章月，郭强，宋继叶，许强(1255)
川东南—黔西北桐湾Ⅲ幕岩溶古地貌恢复 …… 冯伟明，谢渊，李嵘，罗建宁，林家善，刘建清，赵瞻(1270)
南昌市梅岭花岗岩石蛋地貌的特征与发育机制初探 …… 李志文，郭福生，孙丽，黄宝华(1281)
鄂西地区陡山沱组页岩气成藏地质条件研究 …… 彭波，刘羽琛，漆富成，东艳，王振云(1293)

研 究 进 展

鄂尔多斯盆地西北缘奥陶纪凝灰岩锆石 U-Pb 年龄、Hf 同位素特征及地质意义 …… 吴素娟，张永生，邢恩袁(1309)
内蒙古呼和浩特北二道凹岩群黑云角闪片岩 SHRIMP 锆石 U-Pb 定年 …… 张玉清，张婷，宝音乌力吉，银海，曾庆荣(1328)
西昆仑奇台达坂一带晚三叠世中酸性侵入岩锆石 LA-ICP-MS 年龄、地球化学特征及其构造意义 …… 赵江林，贺宁强，杜彪，曾忠诚，袁璋(1337)
黔西南普安泥堡大型金矿床黄铁矿与毒砂标型特征及金的赋存状态 …… 郑禄林，杨瑞东，陈军，高军波，张旭，魏怀瑞(1361)
蒙古巴音苏赫图钨矿床正长斑岩锆石 U-Pb 年龄及其地质意义 …… 郭志华，张宝林，党永岐，郭勃巍，高磊，侯金亮，张丽春(1378)
滇东北茂租热液型铅锌矿床矿物组合共生分异的热力学 Eh—pH 相图…… 张荣伟，彭建堂，邓起东，贺胜辉，薛力鹏(1391)
中国煤储层渗透率主控因素和煤层气开发对策 … 康永尚，孙良忠，张兵，顾娇杨，叶建平，姜杉钰，王金，毛得雷(1401)
特殊地质环境条件研究在超大基坑支护设计中的意义——复杂地质环境下超大异形基坑支护设计优化分析 …… 郭书兰，阎长虹，杨战勇，王清明，张立丰，王实，车灿辉，史庆涛(1419)

通 讯 资 料 · 消 息 报 道

加强科普能力建设，推动科普技术普及——国土资源部地下水科学与工程科普基地建设成果及近期规划…… 张亚哲，崔浩浩，冯欣(1306)
中国地质学会第 16 届青年地质科技奖(金、银锤奖) 揭晓 …… (1140,1336)

(本期执行总编辑 章雨旭、刘志强 图件修编 刘萌)

《地质论评》刊头图案说明

1922 年中国地质学会成立，并创办了《The Bullletin of Geological Society of China》（即《中国地质学会志》，主要为英文，包括德文、法文等），标志着中国地质学家已经成长起来。至 1936 年，先辈们觉得“但中文刊物，至今尚付缺如，实为遗憾。夫一国学术之发表，岂能尽恃外国文字，此乃事理之至明者”（谢家荣，地质论评发刊辞），遂创办了第一个中文地质学定期刊物——《地质论评》。

《地质论评》创刊之时，中国正处于内忧外患之中，东北沦陷于日寇，西南被英帝国主义（当时印度尚未独立，系英国的殖民地）炮制的“麦克马洪线”划走了我 90000 余 km^2 的国土，为表达我地质学者的爱国之心和忧愤之情，设计了东北受侵吞（缺右上角）、西南遭蚕食（左下有缺口）的刊头图案，自创刊号一直沿用至今。

义勇军进行曲的“中华民族到了最危险的时候”依旧时刻警醒着全中国人民！我们希望与义勇军进行曲同时代诞生的《地质论评》刊头图案也能像她一样，继续激励全中国地质工作者立足于中华大地，在促进世界地质学学术理论发展的同时，切实地为国家、为民族解决资源和环境等问题贡献我们的智慧，为祖国的进一步繁荣富强贡献我们的力量。

《地质论评》已过耄耋之年，她将一如继往地坚持论、评、述、报之特色，坚持“百花齐放、百家争鸣”的宗旨，为地质学的学术进步永葆青春活力；也敬请各位学者继续支持。

《地质论评》编辑部 2017 年 9 月

地 质 论 评
DIZHI LUNPING
（双月刊，1936 年创刊）
第 63 卷 第 5 期 2017 年 9 月 15 日出版

主　　管　中国科学技术协会
主　　办　中国地质学会
编　　辑　《地质论评》编辑委员会
地　　址：北京阜成门外百万庄路 26 号
邮政编码：100037；电话：010 - 68999804
电子信箱：georeview@cags.ac.cn
网　　址：www.geojournals.cn/georev
主　　编　杨文采
出　　版　科学出版社
100717，北京东黄城根北街 16 号
排　　版　《地质论评》编辑部
印刷装订　北京地大彩印有限公司
总发行处　北京报刊发行局
订 购 处　全国各邮电局
国外总发行　中国国际图书贸易总公司
（中国国际书店）
北京 399 号信箱，邮政编码 100044

GEOLOGICAL REVIEW
（Bimonthly，Started in 1936）
Vol. 63　No. 5
Published on September 15，2017

Competent Authorities：*China Association for Science and Technology*
Sponsored by *Geological Society of China*
Edited by Editorial Committee of *GEOLOGICAL REVIEW*，26，Baiwanzhuang Road，Beijing，100037；Tel.：010 - 68999804；Email：georeview@cags.ac.cn
Website：www.geojournals.cn/georev
Editor in chief　YANG Wencai
Published by *Science Press*，16，Donghuangchenggen North Street，Beijing，100717，China
Composed by Editorial Department of *GEOLOGICAL REVIEW*
Printed by *Beijing Dida Coloured Printing Co.，Ltd.*
Distributed by *Beijing Bureau for Distribution of Newspapers and Journals*
Subscription handled by *Local Post Offices of China*
Distributed abroad by *China International Book Trading Corporation*（Guoji Shudian）
P. O. Box 399，Beijing 100044，China
International Periodical No：BM337

刊号：ISSN 0371 - 5736 / CN 11 - 1952/P　国内邮发代号：2 - 382　国外发行代号：BM337　定价：50.00 元
国内外公开发行
ISSN 0371-5736