

# 中国地质(双月刊)

## (ZHONGGUO DIZHI)

2023年12月第50卷第6期(总第419期)

## 目 次

### 特别关注

全球锂矿床的分类、外生锂矿成矿作用与提取技术

..... 郑绵平,邢恩袁,张雪飞,黎明明,车东,卜令忠,韩佳欢,叶传永(1599)

青藏高原如角高温地热系统构造-热耦合成热模式

..... 郭镜,唐发伟,官辉,赵海华,赵小云,旦增国杰,杜炳锐(1621)

山西大同盆地北部地热地质特征及资源潜力

..... 潘良云,孟令箭,孙福利,杨文军,张玮,任路,薛慧,周博,杨慧(1632)

江西省地热资源赋存特征及潜力评价

..... 王安东,孙占学,蔺文静,杨旎,叶海龙,童珏,王运(1646)

天津市馆陶组地热流体可采量计算方法及适宜性分区研究

..... 刘杰,宋美钰,胥博文,阮传侠,石峰(1655)

黑龙江林甸地热田热水微生物多样性与群落结构分析 ..... 朱瑞杰,周学军,詹涛,  
马永法,王旭,董俊领,刘玲,杨峰田,李栋,石宇佳,苏玉娟(1667)

西宁地区地热水环境中钢材腐蚀性能及防腐措施建议

..... 赵振,秦光雄,耿松鹤,陈惠娟,晁嘉豪,张亮(1678)

### 综述论文

地球物理方法在城市地质结构精细化探测中最优方法组合研究——以成都市天府新区为例

..... 李华,王东辉,张伟,杨剑,王桥,廖国忠,王春山,韩浩东,  
席振铢,王亮,刘胜,夏友刚,李颖,杨涛(1691)

黄淮海平原地下水化学演化特征、形成机制及其开发利用建议

..... 刘春燕,黄冠星,荆继红,刘景涛,张英,郭维轩(1705)

旅游地学原理在新型地调项目中的应用与思考——以西藏雄梅1:5万四幅矿调项目为例

..... 马旭东,陈伟,刘洪章,张涛,李强(1720)

乌兹别克斯坦中天山金铜成矿特征与找矿潜力评价 ..... 曹积飞,翁凯,  
Movlanov Jahongir Jurabekovich, Asrorovich Rustamov Akmal,马中平,刘明义(1731)

### 学术论文

滇西北香格里拉铜厂沟斑岩型钼铜矿成矿热液蚀变与元素迁移富集规律

..... 李守奎,陈建航,刘学龙,张世涛,李振焕(1745)

- 鄂尔多斯盆地北部纳岭沟铀矿直罗组含铀岩系蚀源区识别 ..... 冯晓曦, 滕雪明, 陈路路, 陈印, 赵华雷, 张天福(1764)
- 内蒙古白云鄂博地区识别出新火成碳酸岩 ..... 胡乐, 李以科, 孙盛, 李瑞萍, 柯昌辉, 王安建(1788)
- 西藏中部聂尔错地区辉绿岩锆石 U-Pb 年龄与地球化学特征: 对新特提斯洋板片断离的指示 ..... 吴浩, 徐祖阳, 严维兵, 郝宇杰, 刘海永(1804)
- 宁夏灵武侏罗系直罗组碎屑岩地球化学特征及源区构造背景分析 ..... 陶瑞, 海连富, 王磊, 宋扬, 李海峰, 林丽, 梅超, 白金鹤(1817)
- 青海扎巧合蛇绿混杂岩中辉长岩地球化学、锆石 U-Pb 年龄及对洋脊环境的限定 ..... 张金明, 陈光庭, 才航加, 田成秀, 雷晓清(1837)
- 松辽盆地腰南 5 井上白垩统嫩江组一段遗迹化石组合及其沉积环境 ..... 荆锡贵, 李凤杰, 张达, 李宁, 苗贺, 丁锐(1848)
- 冀中坳陷地区地下热水氟分布特征及其风险评估和开发利用建议 ..... 李曼, 邢林啸, 王贵玲, 张薇, 赵佳怡, 靳孟贵(1857)
- 河南栾川县钼矿区周边农田土壤重金属污染特征与健康风险评价 ..... 程贤达, 孙建伟, 贾煦, 刘向东, 赵元艺(1871)
- 河北省张北县新生代玄武岩偏硅酸矿泉水化学特征及成因 ..... 何锦, 马雪梅, 邓启军, 李伟, 马学军, 郑一迪, 刘昭(1887)
- 雄安新区工程地质层组划分、三维地质结构构建及其在城市规划建设中的应用 ..... 韩博, 夏雨波, 马震, 王小丹, 郭旭, 林良俊, 裴艳东(1903)
- ### 发现与进展
- 内蒙古额济纳旗七一山地区新增一大型萤石矿床 ..... 张立涛, 杨永春, 丁书宏(1919)
- 北山成矿带东段新发现一处具中一大型远景萤石矿 ..... 刘天航, 唐卫东, 高永宝, 魏立勇, 范堡程, 何佳乐(1921)
- 东秦岭陕西洛南—丹凤地区新发现伟晶岩型锂铍锡钽矿点 ..... 蔡文春, 王天毅, 高峰, 张小明, 王学平(1923)
- 柴达木盆地盐湖黏土中锂、铷、铯超常富集及其开发潜力 ..... 潘彤, 陈建洲, 丁成旺, 马玉亮, 梁辉, 薛晟, 张涛, 杜小春(1925)
- ### 简讯与热点
- 中国地质调查局专利转化现状及建议 ..... 王晓丽, 宋韦剑, 王鑫, 陈杨, 张敬(1928)
- 《中国地质》编委代世峰教授、邓军教授和李三忠教授入选地球科学领域 2023 年度全球“高被引科学家”名单 ..... 王鑫(1930)
- 2023 年我国 104 种地质学类期刊影响因子 ..... (1932)
- 中国地质调查局 2023 年最有价值的国家发明专利集锦(二) ..... (封二)
- 《中国地质》第四届编辑委员会 《中国地质》被收录的 40 家数据库 ..... (封三)
- 《中国地质》(双月刊)栏目设置与稿约 ..... (I)

# GEOLOGY IN CHINA

(Bimonthly)

Dec. 2023 Vol. 50, No.6 (Serial No. 419)

## Contents

### In Focus

- Classification and mineralization of global lithium deposits and lithium extraction technologies for exogenetic lithium deposits ..... *ZHENG Mianping, XING Enyuan, ZHANG Xuefei, LI Mingming, CHE Dong, BU Lingzhong, HAN Jiahuan, YE Chuanyong*(1599)
- Structure-thermal coupling model of the high temperature geothermal system in Rujiao on the Xizang Plateau ..... *GUO Jing, TANG Fawei, GUAN Hui, ZHAO Haihua, ZHAO Xiaoyun, DANZENG Guojie, DU Bingrui*(1621)
- Geothermal geological characteristics and resource potential in the north of Datong Basin, Shanxi Province ..... *PAN Liangyun, MENG Lingjian, SUN Fuli, YANG Wenjun, ZHANG Wei, REN Lu, XUE Hui, ZHOU Bo, YANG Hui*(1632)
- Occurrence features of geothermal resources and geothermal potential assessment of Jiangxi Province ..... *WANG Andong, SUN Zhanxue, LIN Wenjing, YANG Ni, YE Hailong, TONG Jue, WANG Yun*(1646)
- Calculation method and suitability zoning of recoverable geothermal fluid in Guantao Formation of Tianjin City ..... *LIU Jie, SONG Meiyu, XU Bowen, RUAN Chuanxia, SHI Feng*(1655)
- Analysis of microbial diversity and community structure in thermal waters from Lindian geothermal field, Heilongjiang Province ..... *ZHU Ruijie, ZHOU Xuejun, ZHAN Tao, MA Yongfa, WANG Xu, DONG Junling, LIU Ling, YANG Fengtian, LI Dong, SHI Yujia, SU Yujuan*(1667)
- Corrosion performance of steel in geothermal water environment in Xining area and suggestions for anti-corrosion measures ..... *ZHAO Zhen, QIN Guangxiong, GENG Songhe, CHEN Huijuan, CHAO Jiahao, ZHANG Liang*(1678)

### Reviews

- The application effect of geophysical method in fine exploration of urban geological structure and study of optimal combination method: A case study of Tianfu New Area in Chengdu, Sichuan Province ..... *LI Hua, WANG Donghui, ZHANG Wei, YANG Jian, WANG Qiao, LIAO Guozhong, WANG Chunshan, HAN Haodong, XI Zhenzhu, WANG Liang, LIU Sheng, XIA Yougang, LI Ying, YANG Tao*(1691)
- Characteristics and driving mechanisms of evolution of groundwater chemistry in Huang-Huai-Hai Plain and suggestions for its exploitation and utilization suggestions ..... *LIU Chunyan, HUANG Guanxing, JING Jihong, LIU Jingtao, ZHANG Ying, GUO Weixuan*(1705)
- Application and thinking of tourism earth-science in new geological survey——Take the project of Xiongmei four 1:50,000 mineral geological survey maps in Tibet as an example ..... *MA Xudong, CHEN Wei, LIU Hongzhang, ZHANG Tao, LI Qiang*(1720)
- Gold-copper metallogenic characteristics and prospecting potentiality in the Central Tianshan region, Uzbekistan ..... *CAO Jifei, WENG Kai, Movlanov Jahongir Jurabekovich, Asrorovich Rustamov Akmal, MA Zhongping, LIU Mingyi*(1731)

### Research Articles

- The law of ore-forming hydrothermal alteration and element transfer and enrichment of the Tongchanggou porphyry Mo-Cu deposit in Shangri-La, Northwest Yunnan ..... *LI Shoukui, CHEN Jianhang, LIU Xuelong, ZHANG Shitao, LI Zhenhuan*(1745)

(Executive editors of this issue: GUO Boran, LI Yaping, GUO Hui)

Identification of provenance on uranium–bearing rocks from the Zhiluo Formation in the Nanlinggou uranium deposit, northern Ordos Basin

..... *FENG Xiaoxi, TENG Xueming, CHEN Lulu, CHEN Yin, ZHAO Hualei, ZHANG Tianfu*(1764)

Identification of new igneous carbonatites in the Bayan Obo area, Inner Mongolia

..... *HU Le, LI Yike, SUN Sheng, LI Ruiping, KE Changhui, WANG Anjian*(1788)

Zircon U–Pb ages and geochemical characteristics of diabase in Nie'erco area, central Tibet: Implication for Neo-Tethyan slab breakoff .....

*WU Hao, XU Zuyang, YAN Weibing, HAO Yujie, LIU Haiyong*(1804)

Geochemical characteristics of clastic rocks from the Jurassic Zhiluo Formation in Lingwu, Ningxia and analysis of tectonic background of the source area

..... *TAO Rui, HAI Lianfu, WANG Lei, SONG Yang, LI Haifeng, LIN Li, MEI Chao, BAI Jinhe*(1817)

Geochemical characteristics and zircon U– Pb age of gabbros in the Zhaqiaohe ophiolite mélange, and its limitation on the ocean ridge environment

..... *ZHANG Jinming, CHEN Guangting, CAI Hangjia, TIAN Chengxiu, LEI Xiaoqing*(1837)

Nenjiang Formation 1 member Ichnocoenosis and its deposit environment of Upper Cretaceous from Yaonan 5 well, Songliao Basin .....

*JING Xigui, LI Fengjie, ZHANG Da, LI Ning, MIAO He, DING Rui*(1848)

Distribution characteristics of fluorine in deep geothermal water in Jizhong Depression and its risk assessment and development utilization suggestions

..... *LI Man, XING Linxiao, WANG Guiling, ZHANG Wei, ZHAO Jiayi, JIN Menggui*(1857)

Pollution characteristics and health risk assessment of heavy metals in farmland soil around the molybdenum mining area in Luanchuan, Henan Province

..... *CHENG Xianda, SUN Jianwei, JIA Xu, LIU Xiangdong, ZHAO Yuanyi*(1871)

Hydrochemical characteristics and formation mechanism of metasilicate mineral water in a Cenozoic basaltic aquifer in Zhangbei county, Hebei Province

..... *HE Jin, MA Xuemei, DENG Qijun, LI Wei, MA Xuejun, ZHENG Yidi, LIU Zhao*(1887)

Division of engineering geological strata, building of 3D geological structure and its application in urban planning and construction in Xiong'an New Area

..... *HAN Bo, XIA Yubo, MA Zhen, WANG Xiaodan, GUO Xu, LIN Liangjun, PEI Yandong*(1903)

## Short communication

The discovery of a large scale fluorite deposit in Qiyi Mountain Region, Ejin Banner, Inner Mongolia

..... *ZHANG Litao, YANG Yongchun, DING Shuhong*(1919)

A new discovery of medium–large prospective fluorite deposit in the eastern part of the Beishan metallogenic belt

..... *LIU Tianhang, TANG Weidong, GAO Yongbao, WEI Liyong, FAN Baocheng, HE Jiale*(1921)

New discovery of Pegmatite type Be–Li–Sn–Ta deposit in the Luonan–Danfeng area, Shaanxi Province, Eastern Qinling Mountains .....

*CAI Wenchun, WANG Tianyi, GAO Feng, ZHANG Xiaoming, WANG Xueping*(1923)

Supernormal enrichment of lithium, rubidium and cesium and its development potential in the clay of Salt Lake of Qaidam Basin .....

*PAN Tong, CHEN Jianzhou, DING Chengwang, MA Yuliang,*

*LIANG Hui, XUE Sheng, ZHANG Tao, DU Xiaochun*(1925)

## News and Highlights

Current status and recommendations of patent transformation of China Geological Survey

..... *WANG Xiaoli, SONG Weijian, WANG Xin, CHEN Yang, ZHANG Jing*(1928)

*Geology in China* editorial board members, Professor Dai Shifeng, Professor Deng Jun and Professor Li Sanzhong selected for the 2023 Global "Highly Cited Researchers" list in the field of Geosciences

..... *WANG Xin*(1930)

Impact factor of 104 geological journals in China in 2023 .....

(1932)