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黑龙江多宝山矿田争光金矿床类型、U-Pb年代学及古火山机构

作者	单位
宋国学	中国科学院大学地球科学学院, 北京 100049 中国科学院矿产资源研究重点实验室, 中国科学院地质与地球物理研究所, 北京 100029
秦克章	中国科学院矿产资源研究重点实验室, 中国科学院地质与地球物理研究所, 北京 100029
王乐	中国科学院大学地球科学学院, 北京 100049 中国科学院矿产资源研究重点实验室, 中国科学院地质与地球物理研究所, 北京 100029
郭继海	黑龙矿业集团股份有限公司, 哈尔滨 150090
李真真	中国科学院矿产资源研究重点实验室, 中国科学院地质与地球物理研究所, 北京 100029
佟匡胤	黑龙矿业集团股份有限公司, 哈尔滨 150090
邹心宇	中国科学院大学地球科学学院, 北京 100049 中国科学院矿产资源研究重点实验室, 中国科学院地质与地球物理研究所, 北京 100029
李光明	中国科学院矿产资源研究重点实验室, 中国科学院地质与地球物理研究所, 北京 100029

摘要：

　　争光金矿床(伴生锌)位于我国东北地区黑龙江省多宝山Cu-Au-Mo成矿带南东端,构造上处于古亚洲成矿构造域和滨太平洋成矿构造域的叠加部位。该金矿距北西向的多宝山铜金矿和铜山铜矿分别约为10km和5km,因此,深入研究其成矿时代、成因类型归属,理清与多宝山铜金矿-铜山铜矿的关系具有重要科学价值。争光金矿赋矿围岩为奥陶系多宝山组安山质火山岩地层,发育爆发相、溢流相、火山碎屑流相、火山沉积相等,且爆发相和喷溢相交替出现,具有喷发时期熔岩溢流与火山碎屑物的喷发交替进行或具多旋回火山活动的特征;根据火山集块岩、火山角砾岩、火山碎屑岩的空间展布及岩相变化特征,推测矿区内发育有古火山机构。受后期北西向构造影响,火山岩地层具北西向弱定向变形特征。含金脉系呈脉状、网脉状沿北西向、北东向及南北向构造产出;矿石矿物以黄铁矿、闪锌矿、黄铜矿、方铅矿为主,金以裂隙金、粒间金和包裹金的形式赋存于上述硫化物中,部分赋存在石英中。综合脉系特征、矿物组合、蚀变类型、闪锌矿Fe含量等,本文明确提出该矿床为中硫型浅成低温热液型金矿。对矿区内发育的成矿后闪长玢岩、花岗闪长斑岩及长石斑岩等脉岩的锆石U-Pb测年结果初步厘定争光金矿金成矿作用早于454Ma。综合判断争光金矿与多宝山含金斑岩铜矿、铜山铜矿同形成于480~454Ma受古亚洲洋俯冲作用控制的岛弧背景,构成完整的斑岩Cu-Au与中硫化型浅成低温热液Au成矿系统。

英文摘要：

　　Zhengguang gold deposit is located in the southeast of the famous Duobaoshan Cu-Au metallogenic belt in Heilongjiang Province in China, with distance of 10km from Duobaoshan porphyry Cu-Au deposit, 5km away from Tongshan copper deposit. The deposit's tectonic location is in the superposition area of Paleo-Asian Ocean metallogenic domain and the Pacific Ocean metallogenic domain. Ordovician Duobaoshan Formation of andesitic rock strata are developed in a large area, and the volcanic lithofacies include airfall facies volcano, lava overflow facies, volcanic debris flow facies, and volcanic sedimentary facies. The explosive facies and eruption facies are interbedded with each other and show that the volcano activity alternated between eruption of lava and volcano pyroclastics during the outbreak of volcano. According to the spatial distribution and variation characteristics of ignmibrites, volcano breccias, volcano pyroclastics rocks, we speculate that there is paleo-volcano edifice within the ore district. Influenced by the NW trending structure, the volcanic strata have been experienced weak deformation of NW-trending, and are the main ore-host rock of gold ore bodies. The gold bearing veins appeared as vein and stockwork along the three group faults of north-west, north-east and north-south. The main ore minerals are pyrite, chalcopyrite, sphalerite and galena, and gold appeared in the form of fissure gold, intercrystalline gold and inclusion gold in these sulfides. The combination of veins characteristics, mineral assemblage, alteration, sulphide content in vein, Fe content in sphalerites show that the deposit could be defined as intermediate-sulfidation (IS) type epithermal Au deposit. The intrusions in the region are diorite stock, porphyry diorite dikes, lamprophyre dikes, granodiorite porphyry dikes and plagioclase porphyry dikes. All of them cut across Duobaoshan Formation volcanic rocks and gold ore bodies as the post ore dikes. Zircon U-Pb dating results of the porphyry diorite dikes, granodiorite porphyry dikes and plagioclase porphyry dikes show that the latest time of gold mineralization should earlier than 454Ma. A comprehensive conclusion is that the Zhengguang gold deposit, Duobaoshan copper deposit and Tongshan copper deposit were formed under arc setting that is controlled by the Asian Ocean subduction during 480~452Ma, and formed a complete metallogenic system from porphyry Cu-Au mineralization to intermediate-sulfidation type epithermal Au mineralization. This approach has a great significance for the further exploration under Zhengguang Au(Zn) ore district and adjacent regions.

关键词：争光金矿　古火山机构　锆石U-Pb测年　中硫型　浅成低温热液　多宝山矿田　东北地区

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