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秦岭山阳-柞水矿集区150~140Ma斑岩-矽卡岩型CuMoFe(Au)矿床成矿作用研究

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摘要：

秦岭造山带内的山阳-柞水古生代弧前盆地中出露有池沟、小河口、冷水沟、园子街、下官坊及双元沟等CuMo、CuFe（Au）矿床，与这些矿床具有成因联系的岩体为形成于150~140Ma的高钾钙碱性和钾玄岩系列花岗岩，为华北和扬子大陆碰撞后伸展阶段壳、幔混合岩浆的产物。矿化主要发生在岩体与泥盆、石炭纪地层中碳酸盐岩的接触带附近，主要类型为矽卡岩型，少量为斑岩型，部分矿床具有统一的矽卡岩-斑岩型成矿系统，矿化组合主要为CuMo、CuFe（Au）和Cu矿化。外接触带主要发育有矽卡岩和角岩化蚀变，内接触带主要为岩体内部的硅化、钾化、绢云母化、绿泥石化及粘土化，内矽卡岩不发育。矽卡岩矿物主要有石榴石、透辉石、绿帘石、透闪石，阳起石等，其中石榴子石主要为钙铁榴石和钙铝榴石，透辉石是辉石的主体，早期形成的石榴石和透辉石等无水矿物组合常被后期的绿帘石、透闪石和阳起石等含水矿物及石英、方解石等所交代。金属矿物比较简单，最主要的含铜矿物为黄铜矿和斑铜矿，铁矿化主要为磁铁矿和镜铁矿。尽管这些矿床以矽卡岩型矿化为主，但部分矿床中已发现有斑岩型矿化和蚀变特征，这可能暗示了该区可能具有统一的矽卡岩-斑岩型成矿系统，进而表明山阳-柞水矿集区深部具有寻找斑岩型矿床的巨大潜力。

英文摘要：

Some CuMo, CuFe(Au) deposit, e.g. Chigou, Xiaohekou, Lengshuigou, Xiaguanfang, Yuanzijie and Xiaguanfang, distribute in the Shanyang-zhashui Paleozoic fore-arc basin of Mid-Qinling, Shaanxi Province. The rocks with the mineralization formed in 150~140Ma, belong high K calc-alkaline and shoshonite. The source region of the rocks are the mixture of lower crust and mantle, and formed in the extend stage of North China and Yangtze continental collision. Mineralization occurred in the contact zone of the Late Jurassic and Early Cretaceous rocks with Devonian and Carboniferous strata. Mineralization types are main skarn with little porphyry, some deposit with uniform skarn-porphyry metallogenic system. Mineralization combinations are CuMo, CuFe(Au) and Cu. Hydrothermal alterations in exocontact zone are skarnization and hornfielsization, while the alterations of endocontact occurred in rocks are silicification, potassic, sericitization, chloritization and argillation, the endoskarn is not well developed. Minerals in skarn are garnet, diopside, epidote and actionlite, etc. Garnets are main andradite and grossularite, diopsides are the main component of pyroxene. The early skarnization stage is featured by mainly andradite and grossular skarn, containing diopside, hedenbergite, magnetite and some copper minerals; and the late water-bearing silicate stage is of replacement of garnet skarn by chlorite, epidote, quartz, calcite and together sulfides precipitation. The latter is the main stage of copper mineralization. Chalcopyrite and bornite are the dominant ore mineral associated with mino rpyrite; magnetite are the dominant iron mineral with miner specularite. Although the skarn mineralization is the main type of Late Jurassic and Early Cretaceous deposit in Shanyang-zhashui ore concentration area. Appearance of porphyry copper mineralization in some skarn deposits implies that skarn mineralization of the study area having uniform porphyry-skarn ore forming system. Therefore, it is presumed there should be potential to find deep level porphyry-type Cu-Au mineralization targets, which has vital significance for mineral exploration in the area.

关键词：斑岩-矽卡岩型矿床 成矿系统 成矿作用 150~140Ma 山阳-柞水矿集区 秦岭

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