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安徽铜陵狮子山矿田铜金多金属矿床的成矿模式

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摘要:

狮子山矿田是铜陵矿集区最具代表性的铜金多金属矿田。本文选择狮子山矿田中的几个典型矿床进行地质和地球化学研究, 系统阐述了矿床的控矿构造和赋矿岩石、矿体和矿石、蚀变和矿化等地质特征, 确定了矿床成因类型; 深入研究了侵入体与矿床矿体的时空关系以及主要矿床的流体包裹体地球化学特征及氢-氧、碳-氧、硫和铅同位素地球化学特征, 探讨了成矿流体、成矿金属元素(铅)及其化合物元素(碳和硫)的来源; 结合成岩成矿大地构造背景分析, 确定了不同矿床类型间的成因联系, 建立了斑岩型-矽卡岩型-浅成热液型矿床成矿模式, 为狮子山矿田边部和深部及铜陵矿集区及其邻区的找矿勘查提供了理论依据, 并据此建议在铜陵矿集区以往以矽卡岩型矿床为主要找矿目标的基础上, 进一步加强研究和寻找由统一的岩浆热液系统控制的斑岩型铜(-钼、-金)矿床和浅成热液型金(-银多金属)矿床。

英文摘要:

The Shizishan ore-field is the most representative copper-gold-polymetallic ore-field in the Tongling ore district of Anhui Province. In this study, several typical deposits in the Shizishan ore-field were chosen to carry out geological and geochemical studies. According to systematical description and explanation of the geological characteristics of ore-controlling structures, hosted rocks, ore-bodies, mineral assemblages, alteration and mineralization of the ore deposits, the genetic types of the deposits were further determined. Based on a thoroughly investigation on the temporal-spatial relationships between orebodies and magmatic intrusions, and the geochemical characteristics of fluid inclusions and H-O, C-O, S and Pb isotopes, the sources of the ore-forming fluids, the ore-forming metal elements (lead) and the compound elements (carbon and sulfur) were also discussed and tracked. Combining with analysis of the geotectonic background of the Mesozoic magmatism and mineralization, the genetic relationships among these types of deposits were ascertained, and a metallogenic model of porphyry type-skarn type-epithermal type ore deposits established. This new model not only stressed the importance and variety of secondary types of the skarn type deposits, but also added the knowledge on the porphyry type and epithermal type deposits. The model may provide theoretical basis for the further ore prospecting in deep and outer areas of the Shizishan ore-field and Tongling ore district as well as their adjacent regions. It is suggested that the research and exploration should be strengthened for the porphyritic Cu (-Mo, -Au) deposits and epithermal Au (-Ag polymetal) deposits which controlled by a uniform magmatic hydrothermal system.

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