

Mineralogy study in the Zijinshan Orefield, Fujian Province, China

R. YE*, M. LU, W.H. ZHANG, Y.Y.DONG, X.J. WANG

¹ School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China(*correspondence: yerong@cugb.edu.cn; lumei_@outlook.com)

The Zijinshan super large scale high-sulfidation epithermal Cu-Au deposit and the Yueyang large scale low-sulfidation epithermal Ag-polymetallic deposit in the Zijinshan Orefield, Fujian Province, southeastern China present two types of epithermal deposits. Intense hydrothermal alteration associated with mineralization of Cu and associated Au and Ag at the Zijinshan Cu-Au deposit is characterized by quartz-alunite alteration, but at the Yueyang Ag-polymetallic deposit Ag mineralization with associated Au and Cu is related to quartz-adularia alteration. Based on optical microscopic observation, electron probe micro-analyzer (EPMA), field emission scanning electron microscopy with energy dispersive X-ray spectrometer (FESEM/EDS) the occurrences of Au and Ag are studied. Au not only occurs in the form of free gold in upper Au-mineralization bodies but also exists in the digenite and enargite, djurleite and pyrite in lower Cu-mineralization bodies at the Zijinshan Cu-Au deposit. The average contents of Au and Ag in the oxide and sulfide ores are 0.14 $\mu\text{g/g}$ and 2.99 $\mu\text{g/g}$, and 1.28 $\mu\text{g/g}$ and 63.57 $\mu\text{g/g}$, respectively. Argentite, submicroscopic Ag and Ag-bearing galena are observed at the Yueyang Ag-polymetallic deposit, and submicroscopic Ag widely exists in the pyrite, galena and quartz. Ag is also found in galena, pyrite, chalcopyrite based on the EPMA. There are 0.18 $\mu\text{g/g}$ Au and 46.8 $\mu\text{g/g}$ Ag in ores on the average. The contents of Fe, S, Co, Ni in pyrites indicate that the genesis of the Zijinshan Cu-Au deposit and the Yueyang Ag-polymetallic deposit is connected to hydrothermal activities.

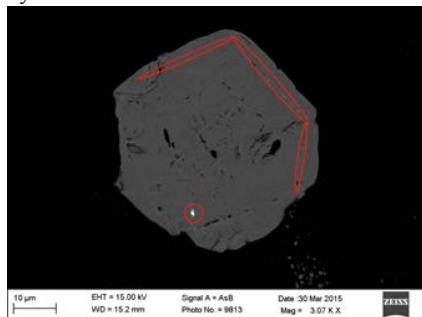


Figure 1: Ag was included in pyrite.

This study was supported by NSFC grants of No.41573037 and 41273063.