1 Introduction

The Xiangcheng-Luoji area is located in the southern part of the Sanjiang (i.e. the Three Rivers: Nujiang (Salween), Lancangjiang (Mekong) and Jinshajiang) mineralization belt contiguous to the western margin of Yangtze land block in Southwest China which has four Indosinian (254-213Ma) units: Zhongza Massif, Yidun Island Arc, Ganzi- Litang Suture Zone and Yangtze Land Block (Fig. 1, Li et al., 2010). This area has been widely studied for Indosinian intermediate-felsic porphyry Cu deposits (e.g., Pulang) and Himalayan alkaline porphyry Cu-Au deposit (e.g., Beiya). Yanshanian acid intrusive rock belt have recently identified with the profound study of tectonic evolution and magmatic rocks over the area. The intrusions have been dated of 65-96.4Ma, and they are associated with Mo-polymetallic mineralization with the ages of 77-86Ma. In Shangri-la County of northwest Yunnan, in particular, Hongshan and Tongchanggou large Mo-polymetallic deposits as well as many middle- and small scale Mo deposits such as Xiuwacu and Relin, have been proved with significant exploration potentials. The Yanshanian acid intrusive rocks (porphyries) are distributed along a NS striking belt crossing three Indosinian tectonic units: the Yidun Triassic island arc zone, Ganzi-Litang Triassic suture zone and the western margin of Yangtze land block (Fig. 2). The studies on newly discovered Tongchanggou Mo-polymetallic deposit indicated that these Yanshanian intrusions and associated deposits were formed after the matching of the Sanjiang multiple island arc-basin systems.
2 Yanshanian Intermediate-Acid Rocks and Geochemistry

We took 70 rock samples in the area for polished and thin section analysis and collected their mineral compositions. Molybdenum mineralization is associated with various rocks, occurring in quartz veins, altered granite or forming porphyry Mo deposits (Fig. 3).

The ore-bearing intrusions have high SiO$_2$ contents of 69.07~72.91%, with high differentiation degrees. They are high in Na$_2$O+K$_2$O and Al$_2$O$_3$, and relatively low in TiO$_2$, Fe$_2$O$_3$ and MgO. The intrusions contain low H$_2$O (2.78-4.55), and have the Al-alkali indices (A/CNK) mostly near 1, suggesting a weak-peraluminous magma typically of S-type granite. They have high contents of REE with enriched LREE and averaged $\delta$Eu value of 0.61, typically of orogenic granites. The high field intensity trace elements such as Ta, Rb, Th, Nb, and LREE La, Ce, Sm, are generally high, and the incompatible element Rb is mostly high with high Rb/Sr ratios, indicating high differentiation of magma in the ore-bearing intrusions. They are also high in Cu, Mo and W but low in Pb, Zn and Sn, and have good mineral potential. The intrusions were emplaced in Late Yanshanian. Their Zr/Hf ratios are high, their Ba/Rb ratios are low. Their low Ba, Sr abundances and high Rb/Sr ratios suggest that the magma was originated from the inland, thickened crust after the collision of different tectonic units.

3 Mineralization Model

In Xiangcheng-Luoji area, the regional mineralization of Yanshanian Mo-polymetallic deposit takes place in Indosinian post-collision stage, influenced by both Yanshanian new tectonic episode and upwelling of mantle fluid, the melting of thickened lower crust causes the development of Yanshanian structure-magma-hydrothermal fluid system, following the magmatism, development of large Mo-polymetallic mineralization, forming a series of large, middle scale ore deposits. The early mineralization fluid is the hydrothermal fluid of mid-high T, high salinity NaCl-CO$_2$-H$_2$O system, the late one becomes the mineralization fluid of mid-low T, low salinity NaCl-H$_2$O system, development of gas-liquid 2 facies inclusion. The fluid system mainly results from the buried Yanshanian granitic magmatic intrusion. The evident characteristics are the main Mo, associate Cu, Au, W. The apophyse outcropped in shallow part is mostly whole rock mineralization, and Cu-Mo skarn orebody is formed on the contact with carbonate rock, locally forming skarn Fe, Au deposit. In the fault structural zone of apophyse top, Mo-Cu deposit and Pb-Zn deposit are formed from lower to upper parts, such as Tongchanggou. A part of intrusion intrudes upwards into Indosinian intrusion or a side of it, forms superimposition composite mineralization, such as Hongshan shallow Indosinian skarn, porphyry Cu, Pb, Zn-polymetallic deposit, deep Yanshanian porphyry Mo-Cu deposit. In Geza island arc area, Re content of molybdenite in Yanshanian Mo-polymetallic deposit is similar to that of crust-mantle mixture derived magmatic ore deposit, the mineralization material results from the crust-mantle mixed source, mainly the crust-derived material.

In northern Yunnan and southwestern Sichuan, in the western Yangtze land block and Yanshanian magmatism & mineralization( Li et al., 2013).

Fig. 2. Simplified Geological Map of Sanjiang-Yangtze Conjunction Zone
outcropped quasi-porphyritic biotite monzonitic granite, granodiorite body, the quartz vein type and altered granite type Mo mineralization is widely developed (e.g. Xiuwacu Mo deposit). In southern part, Tongchanggou and Hongshan, the intrusions are mostly buried, whole rock mineralization of apophyse on top, forming fine grained disseminated, veinlet disseminated Mo (Cu-W) mineralization (body). In the structural fracture zone, interbedded slip zone in carbonate rock area and contact between basalt and carbonate rock, skarn type Mo-Cu deposits were formed, Cu-Fe, Cu-Au orebody locally in the marginal part of intrusion, the hydrothermal Cu-Pb-Zn polymetallic orebody formed on the surface or in the shallow part, forming Mo (Cu-W) → Cu-Mo → Fe -Cu-Au→Pb-Zn-Ag mineralization zonation and the porphyry Mo polymetallic mineralization system, mineralization model is in Fig. 4.

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