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of the ore deposit, and using Re-Os isotopic dating by molybdenite. The results showed that, Yaojialing molybdenite model ages is  $140.3 \pm 2.0 \sim 143.0 \pm 2.2$  Ma, the weighted average age is  $141.43 \pm 0.85$  Ma, MSWD = 0.78, the isochron age is  $142.5 \pm 1.6$  Ma, MSWD = 1.2. It shows that Yaojialing Zn—Au polymetallic deposit was formed in the late Early Cretaceous, and it consistent with Tongling district of other metal deposits in diagenetic mineralization age. The samples of w(Re) is between 0.2421‰ ~ 1.346‰, it indicated the minerals is from mantle-derived magma. The deposit was formed in the first phase of mineralization of the Yanshan diagenesis and mineralization in the Yangtze River and is in the stage of regional tectonic-motives of conversion in the eastern of China.

**Keywords:** Molybdenite; Re-Os isotope age; Yaojialing Zn—Au polymetallic deposit; Early Cretaceous.

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