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安徽铜陵狮子山矿田岩浆岩锆石SHRIMP定年及其成因意义 [点此下载全文](#)

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摘要:

铜陵狮子山矿田发育大量岩浆岩, 且与矿田中的铜-金-多金属成矿关系密切。锆石SHRIMP同位素精确定年表明, 矿田中的岩浆侵位年龄在132.4~142.9Ma之间, 即晚侏罗世—早白垩世, 属燕山早期晚阶段。矿田岩浆岩体是在同期岩浆活动中多次侵位形成的, 岩浆侵入活动可以划分为分别起始于140Ma前后和约136Ma的早晚两次。从岩浆上升侵位到冷却结晶的时间间隔均较短, 但其中白芒山辉石二长闪长岩冷却史相对较长, 且经历了早期深部岩浆房中的分离结晶作用和后期构造脉动、岩浆上升侵位、减压受热、早期晶体再熔蚀及冷却结晶的过程。结合主量元素和微量元素地球化学研究认为, 狮子山矿田岩浆演化的后期, 即起源于上地幔或下地壳的原生岩浆在同化了壳源物质并聚集到岩浆房中以后, 在滞留的过程中发生了一定程度的分离结晶作用, 但尚未固结, 成分上显示了一定的带状分布, 在区域构造应力松弛及构造事件诱发下, 随机地沿发育的构造裂隙先后上升侵位, 冷凝结晶。

关键词: [锆石SHRIMP定年](#) [岩浆岩](#) [岩浆演化](#) [狮子山矿田](#) [安徽铜陵](#)

SHRIMP Zircon U-Pb Dating for the Magmatic Rocks in Shizishan Ore field of Tongling, Anhui Province, and Its Geological Implications [Download Fulltext](#)

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Abstract:

A great volume of magmatic rock bodies occurring as dykes or apophyses are developed in the Shizishan ore field of Tongling, Anhui province, and it is believed that they are closely related to the Cu, Au and polymetallic mineralization. The rocks around this ore field are mainly granodiorite, quartz monzodiorite and pyroxene monzodiorite. The highly precise SHRIMP U-Pb dating of zircons from these rocks shows that the ages of the magma emplacement are between 133.3Ma and 142.9Ma in late Jurassic and early Cretaceous period (equivalent to the late stage of Early Yanshanian). The magmatic bodies in the ore field were formed by multiple emplacements of contemporaneous magmas; the time of magma emplacement can be divided into two stages: one started at about 140Ma and the other about 136Ma. The interval time from the beginning of ascending and emplacement of magma until its cooling/crystallization is short. However, the Baimangshan pyroxene monzodiorite has longer cooling history and experienced more complicated processes such as early stage fractionation crystallization in deep magma chamber, structural plusation, ascending and emplacement of magma, decompression and heating, melting of early crystals and cooling crystallization. Geochemical analysis suggested that, during the late stage of magma in the ore field, parent magma originating from the upper mantle or lower crust assimilated crustal material and assembled at the magma chamber, and then the new magma in the chamber fractionated and crystallized to some extent but did not solidified. Therefore, the composition of magma shows a feature of strip distribution. The magma in the chamber triggered stochastically by regional structural stress or tectonic events went up along structural fractures, and emplaced and then cooled crystallized.

Keywords: [SHRIMP U-Pb dating of zircon](#) [magmatic rock](#) [magma evolution](#) [Shizishan ore field](#) [Tongling of Anhui province](#)

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