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赣南兴国县张家地钼钨矿床成岩成矿时代及地质意义

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摘要：

地处EW向南岭成矿带和NE向武夷山成矿带叠置部位的赣南兴国-宁都钨锡矿集区产有多处不同矿化类型的钨锡多金属矿床,但总体研究程度较低。本文基于详细野外地质调查,重点开展了张家地钼钨矿床的高精度成岩成矿年代学研究,并探讨了区域钨锡矿床成岩成矿时空分布及地球动力学背景。张家地钼钨矿化产于花岗岩与震旦纪浅变质细碎屑岩的内、外接触带,包括石英脉型(王泥排矿段)和云英岩型(刘家庄矿段)两种矿化类型。利用SHRIMP锆石U-Pb法,获得张家地钼钨矿区似斑状中细粒黑云母花岗岩的年龄为154.1±1.8Ma;利用辉钼矿Re-Os法,获得王泥排矿段石英脉型矿体的辉钼矿Re-Os等时线年龄为158.4±3.1Ma、加权平均年龄为157.7±1.4Ma,刘家庄矿段云英岩型矿体的辉钼矿Re-Os等时线年龄为161.9±3.2Ma、加权平均年龄为157.9±1.6Ma,厘定矿床成岩成矿时代为晚侏罗世,对应于华南中生代第二次大规模成矿作用。石英脉型和云英岩型矿体中辉钼矿的铼含量均较低(9.58×10^{-6}~22.65×10^{-6}),表明成矿物质以壳源为主;综合分析区域最新年代学数据资料,表明钨锡矿床成岩成矿具多期性,主要集中在240~210Ma、170~150Ma和130~90Ma,以赣南和湘南为中心,钨锡矿床向四周成矿年龄均呈变小趋势。燕山期钨锡大规模成岩成矿作用主要形成于华南中生代岩石圈伸展-减薄时期的侏罗纪板内拉张的地球动力学背景。

英文摘要：

The Xingguo-Ningdu ore cluster in southern Jiangxi Province, located in the convergent zone of the eastern Nanling EW-trending metallogenic belt and the western Wuyishan NE-trending metallogenic belt, possess several different type of W-Sn polymetallic deposits. However, little research has been done for these deposits. Based on detailed field investigations, high-precision isotope dating on the Zhangjiadi Mo-W deposit, the time-space distribution of W-Sn ore deposits in Cathaysia Block and their geodynamic settings are studied in this paper. SHRIMP zircon U-Pb age for porphyritic fine to medium-grained biotite granite from the Zhangjiadi ore deposit is 154.1±1.8Ma. Molybdenites separated from the quartz vein type orebody in the Wangnipai ore block and the greisen orebody in the Liujiazhuang ore block yield Re-Os isochron ages of 158.4±3.1Ma (weighted mean age 157.7±1.4Ma) and 161.9±3.2Ma (weighted mean age 157.9±1.6Ma), respectively, which are corresponding to Late Jurassic period. The studied molybdenites show quite low Re contents (9.58×10^{-6}~22.65×10^{-6}), suggesting a continental crustal source of the ore metals. Integrated with the latest research results, it is concluded that the W-Sn deposits formed during 240~210Ma, 170~150Ma and 130~90Ma, and are centered by the largest scale in southern Jiangxi Province and southern Hunan Province, and become younger in the east, west, south and north directions. We suggest that the Yanshanian large-scale magmatic and ore-forming processes may have occurred in a Jurassic intraplate extensional geodynamic setting during the Mesozoic lithosphere extension in South China.

关键词：钼钨矿床 成岩成矿时代 中生代成矿 地球动力学 张家地 赣南

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